

Drug Use Evaluation: Attention Deficit Hyperactive Disorder Utilization in Adults

Research Questions:

- How have prescribing patterns, utilization and dosages of Attention Deficit Hyperactive Disorder (ADHD) medications in adults enrolled in Oregon Health Plan changed over time?
- How many adults taking ADHD medications have a diagnosis of ADHD or other Food and Drug Administration (FDA) approved indication for use?
- What proportion of adults on ADHD medications have a history of substance use disorder?
- What is the incidence of Emergency Department (ED) visits and/or hospitalizations due to drug overdose in this patient population?
- What is the prevalence of concurrent use of ADHD medications and opioids in adults with ADHD?

Conclusions:

- Utilization of ADHD medications in adults has increased 216% from 2014 to 2018 in per member per month (PMPM) per thousand (4.16 PMPM x 1000 to 13.15 PMPM x 1000 in 2018) see **Figure 3**.
- Approximately 42% of adults on ADHD medications have a diagnosis of ADHD based on available medical claims. However, a significant portion of patients (36%) do not have an ADHD diagnosis reported in claims data. Off-label use accounts for approximately 17% of claims.
- A significant proportion of adults prescribed ADHD medication have a diagnosis suggesting concurrent substance or alcohol abuse/dependence (36%).
- The proportion of patients with a hospitalizations due to drug or alcohol overdose was low (1%). Based on available claims data, there does not seem to be a safety concern for medical visits due to drug or alcohol overdose in adults prescribed ADHD medications.
- A small proportion of patients have concurrent use of ADHD medications and opioids (0.9%).

Recommendations:

- Continue to monitor use of ADHD medications in the adult population and evaluate trends in adults.
- Consider provider education on importance of diagnosis and assessment for patients with treatment-resistant ADHD symptoms and those at an increased risk of substance misuse.

Background:

Attention-Deficit Hyperactivity Disorder (ADHD) is a neurobehavioral disorder affecting over 11% of school-aged children according to 2011 Center for Disease and Prevention Control (CDC) data.¹ Traditionally, ADHD has been thought of as a childhood disorder, although symptoms may persist into adulthood for many individuals, and require lifelong treatment for some patients.² It is estimated that ADHD affects approximately 3 to 4% of adults worldwide.^{2,3} The CDC recommends the following criteria are met in adults for diagnosis of ADHD: 1) several symptoms were present before 12 years of age, 2) several symptoms are

present in 2 or more settings, 3) clear evidence that the symptoms interfere with, or reduce the quality of work functioning, and 4) the symptoms are not better explained by another mental disorder and do not happen only during the course of another psychotic disorder.¹

Stimulant medications used for treatment of ADHD include methylphenidates and amphetamines in addition to non-stimulants such as atomoxetine. The 2018 National Institute for Health and Care Excellence (NICE) guidelines suggest lisdexamfetamine or methylphenidate as first-line pharmacological agents for adults with ADHD.⁴ Atomoxetine is recommended as second line therapy for people that cannot tolerate stimulants or if they do not respond after 6 weeks of therapy.⁴ Untreated or sub-optimally treated adults may be subjected to executive functioning deficits which reduce overall quality of life such as inability to complete tasks or prioritize projects.^{2,3} Adult ADHD is associated with a high prevalence of comorbidities causing personal suffering and maladaptations. Co-morbid mood disorder, anxiety, obsessive compulsive disorder, personality disorder, learning disabilities, and drug and alcohol abuse have frequently been reported in combination with ADHD in adults.⁵ Failing to treat ADHD in adults can result in symptom intensity that is linked with criminality, abuse, and other psychiatric problems.⁶ There is very little data on treatment effectiveness of ADHD with central nervous system (CNS) stimulants in adults, and more research is need to understand the potential benefits of treatment.³ Low quality evidence from a Cochrane review showed that amphetamine use in adults improved the severity of ADHD symptoms in the short term, but did not improve retention to treatment or any other long term outcomes of efficacy and safety.⁷ There was no evidence that higher doses of amphetamines were more efficacious than lower ones, and amphetamines were also associated with higher attrition due to adverse events compared to placebo.⁶

A growing concern is the misuse and abuse of stimulant medications in adults. A systematic review found that the number of adult emergency department (ED) visits related to nonmedical use of prescription stimulants rose nearly 200% from 5,212 in 2005 to 15,585 in 2010.⁸ In another study, when 12,000 respondents diagnosed with ADHD were surveyed, 9.2% had lied about symptoms to motivate a doctor to prescribe ADHD medications and 19.1% intentionally took more ADHD medication than prescribed.⁸ Additionally, 18.1% modified their ADHD medication, including taking the medication by chewing, dissolving, snorting, smoking or injection.⁸ A 2016 national patient survey on drug use found that the motivation for stimulant misuse in adults over 18 years of age was improved concentration (56.3%), assistance with studying (21.9%), to achieve a high or other drug effects (15.5%), or for weight loss (4.1%).⁹ This study also found the prevalence of stimulant misuse without diagnosis of substance use disorder was higher among adults with Medicaid, than those with private insurance only.⁹ There is a limited body of clinical evidence when assessing the risks of using stimulant medications in patients with SUD, however it is known that the risk of untreated ADHD is linked to drug and alcohol abuse meaning potentially, treating with stimulants may outweigh the risk. A cross sectional study in over 65,000 adults in Medicaid found that the prevalence of ADHD increased from 2.20 per 1,000 patients in 1999, to 10.57 in 2010.¹⁰ Similarly, the prevalence of ADHD treatment increased from 1.95 per 1,000 patients in 1999 to 13.16 in 2010.¹⁰ The increase in diagnosis of ADHD may possibly be attributed to the modified diagnostic criteria among adults over time which included additional behaviors and core symptoms. Interestingly, amphetamine salts were the most utilized ADHD treatment, and atomoxetine was on the decline across the 29 states included in the study. In patients with an ADHD diagnosis, approximately half of patients did not have a prescription claim within 6 months of the diagnosis. Comparatively, half of patients on ADHD medications did not have a diagnosis in the 6 months before the treatment.¹⁰ This confirms previous evidence that ADHD is commonly untreated, while also demonstrating that stimulants are often prescribed without diagnosis.¹⁰ One limitation of this is the findings were based on billing records, which has inherent limitations. Another study concluded long term opioid use was more common among adults with ADHD who used stimulants (16.5%), than among those with ADHD who did not use stimulants (13.0%).¹¹

In an effort to monitor and improve patient safety, the Oregon Health Authority (OHA) has collected data surrounding deaths related to substance abuse for the past 2 decades. As shown in **Figure 1**, the overdose death rates in adults between 45 and 64 years old caused by methamphetamine and psychostimulants is rising in Oregon. Data reported by the OHA does not differentiate between deaths caused by illicit methamphetamine, versus prescription stimulants in this graph. Stimulant prescribing in Oregon is also rising, but at a slow rate, while benzodiazepine and opioid prescribing is trending downward (**Figure 2**).

Figure 1: Overdose Deaths by Age

Overdose Deaths by Age

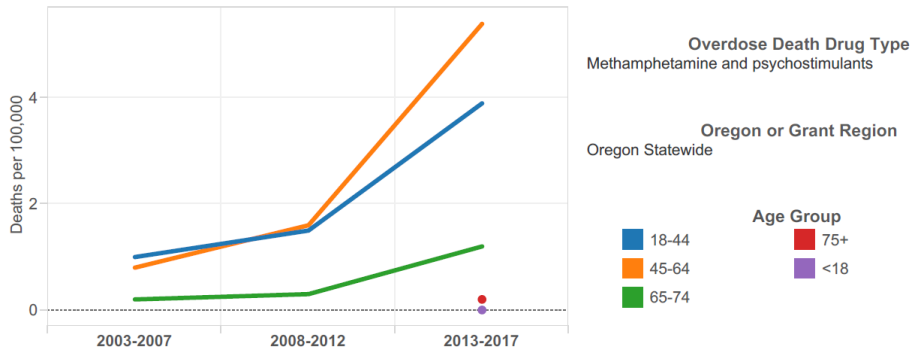
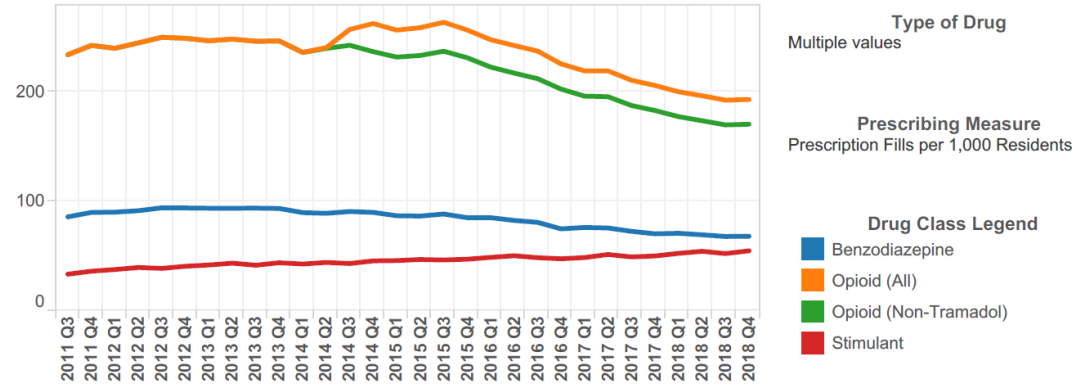


Figure 2: Oregon Controlled Substance Prescribing

Oregon Controlled Substance Prescribing



In 2016, a drug utilization review of ADHD medications in Oregon Health Plan Fee-For-Service (FFS) patients showed an increase in use of ADHD medications in adults age 18 years or older from October 2014 through September 2015 (45%) compared to the year prior (28%). The exact reason for the increase in utilization for adults was unknown, but the finding was consistent with published literature showing an increase in ADHD stimulant utilization in adults in the United States, from 10 million stimulant prescriptions dispensed in 1993, to 50 million in 2011, and 58 million in 2014.¹² Additionally, one third of the patients had a history of substance or alcohol abuse/dependence and over half of patients had a contraindication or precaution to use of these medications. There was no trend in increasing ED visits and/or hospitalizations. Based on these results, the P and T committee recommended to continue evaluating trends of ADHD medication utilization in adults.¹³

The purpose of this review is to evaluate the current prescribing patterns and utilization of ADHD medications in adults in the Oregon FFS population. Based on recent literature and the concern for increasing overdose deaths by stimulants, the review will also evaluate stimulant and non-stimulant use in patients with existing substance use disorder, prevalence of concurrent opioid use, and incidence of hospitalizations due to overdose.

Methods:

In order to illustrate trends over time, FFS ADHD pharmacy claims for adults (18 years or older) are graphed in **Figure 3** from 2014 through 2018 (adjusted to PMPM x 1000). **Figure 4** considers the same monthly utilization but is restricted to those patients with a diagnosis of substance or alcohol abuse/dependence in the year prior (using ICD codes from **Table A2**).

For a more detailed look at recent adult ADHD utilization, a cohort of new start patients was selected by the presence of a paid FFS pharmacy claim for any ADHD drug in **Table A1** from 1/1/2016 through 05/31/2018. The first FFS ADHD paid claim per patient during the study period was designated the index event (IE), and patients were excluded if they had any ADHD claim in the 90 days prior to the IE (FFS or CCO), so that duplicate patients would not be included. Patients were excluded if they were under the age of 18 at the time of the IE, or if they had Medicare Part D coverage as indicated by benefit packages of BMM, BMD, MND or MED. Patients were also excluded if they had less than 75% days of combined FFS or coordinated care organization eligibility from 11 months prior to

the index month to 3 months after the index month (for a total of 15 months) to ensure the most complete data possible. Finally, patients were excluded if they had a diagnosis of narcolepsy or sleep disorder in the year prior to the IE using ICD 9 and 10 codes from **Table A3**.

Baseline characteristics of age, gender, and ethnicity were assessed at the IE, and patients were also categorized by prescriber type and index drug (**Table 1**). Additionally, patients with concurrent use of stimulants and opioids, defined as use of opioid for >90 days with allowance for 1 week gap between refills were identified. Patients with a paid FFS or encounter claim with an ICD 9 or 10 diagnosis code for each of the diagnostic groups from **Table A2** were flagged in the year prior to the IE. Patients are categorized in the following mutually exclusive groups: 1) FDA labeled and funded, 2) FDA labeled and unfunded, 3) non-FDA labeled, and 4) none of the above (**Table 2**). Prevalence of hospitalizations and ED visits, both all-cause and related to overdose, were evaluated in the 90 days after the IE (**Table 4**).

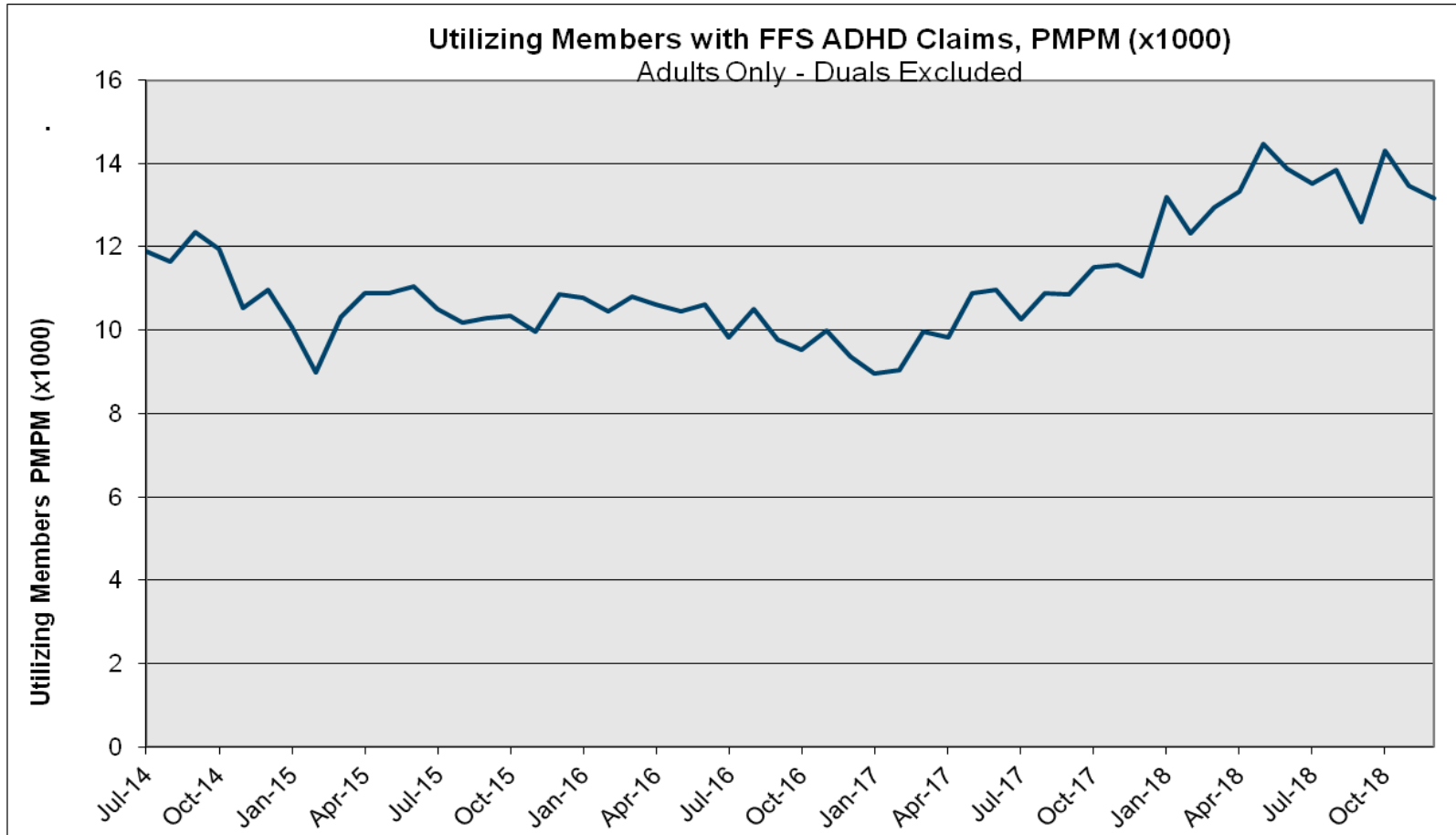
To gauge stimulant dose titration over time, a subgroup of the study cohort was selected based on the requirement they maintain therapy on the IE drug for six continuous months with no more than a 7 day gap in therapy between subsequent claims. From this group, the average daily dose of ADHD medication was compared at the IE and at 6 months after the IE, by index drug (**Table 5**).

Results:

ADHD Medication Utilization

Figure 3 illustrates trends of FFS ADHD pharmacy claims for adults from 2014 to 2018, adjusted to PMPM x 1000. There appears to be a trend upward since 2017.

Figure 3: ADHD Medication Utilization from 2014 to 2018 in Oregon Health Plan Fee-For-Service Population



Demographics of Claims Data

Patient demographics are included in **Table 1**. There were a total of 3,200 paid index events from January 2016 to May 2018. The previous DUE identified only 1,038 paid claims in adults in a one year time period. Most patients were between 25 and 54 years of age. There were 2,088 claims (65.3%) for atomoxetine, and majority of prescriptions were prescribed by physicians (43.2%) and advanced practice nurses (38.2%). Only a small portion of patients (0.9%) were found to be using ADHD medications concurrently with opioids for >90 days.

Table 1: Patient Demographics: Adults with FFS Pharmacy Claim for ADHD drug from January 2016-May 2018

	Index Event Paid Claim	
	N=3,200	
Mean age (range)	34.8	(18-64)
18-24	592	18.5%
25-34	1,173	36.7%
35-54	1,226	38.3%
55-64	209	6.5%
65+	0	0.0%
Female	1,877	58.7%
Race		
White	1,794	56.1%
Other	190	5.9%
Unknown	1,216	38.0%
Patient Count by Index Drug		
armodafinil	46	1.4%
atomoxetine HCl	2,088	65.3%
dexmethylphenidate HCl	7	0.2%
dextroamphetamine sulfate	12	0.4%
dextroamphetamine/amphetamine	520	16.3%
lisdexamfetamine dimesylate	105	3.3%
methylphenidate	2	0.1%
methylphenidate HCl	232	7.3%
modafinil	188	5.9%
Index Drug PDL Status		
PDL = Preferred	2,810	87.8%
PDL = Voluntary Non-preferred	234	7.3%
PDL = Non-preferred	156	4.9%
Index Claim Prescriber Type	(Not mutually-exclusive)	
Physician	1,381	43.2%
Advance Practice Nurse	1,223	38.2%

MH Provider	1,091	34.1%
Physician Assistants	249	7.8%
Adv Comp Health Care	43	1.3%
Concurrent use of opioid for >=90 days	28	0.9%

Associated Diagnoses

Forty-two percent of patients had an FDA labeled and funded indication (ADD/ADHD, binge eating disorder, narcolepsy) for receiving ADHD medications (**Table 2**). This is slightly lower than what was seen in the previous DUE (53%). There was low overall use for exogenous obesity, which is an unfunded condition. Claims for ADHD medications associated with off-label conditions were not significant, and the majority of those claims were for major depressive disorder. Most notably, 36% of patients 18 years of age or older were lacking a diagnosis for the use of ADHD medications. Additionally, 36% of patients had a diagnosis of substance or alcohol abuse or dependence (**Table 3**). **Table 3** also shows that of the 2,088 patients prescribed atomoxetine, 45.5% had concomitant substance use disorder.

Table 2 - Associated Diagnoses in Year Prior to Index Event

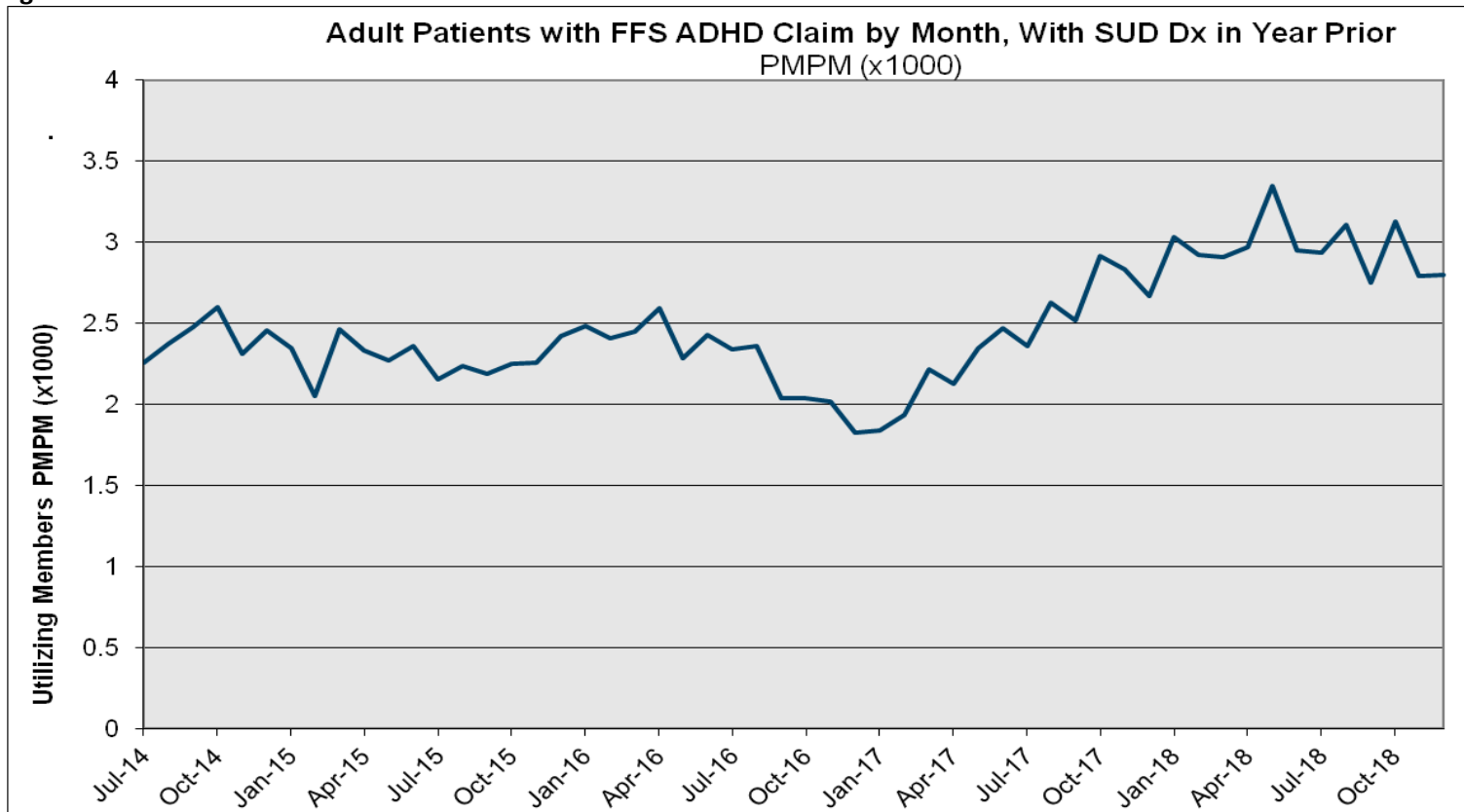
Mutually-Exclusive categories		
	N=	%
	3,200	
FDA Labeled and Funded	1,333	41.7%
ADD/ADHD	1,326	41.4%
Binge Eating Disorder	19	0.6%
Narcolepsy - symptomatic management	0	0.0%
Unfunded, FDA Labeled	146	4.6%
Exogeneous obesity	146	4.6%
Off-Label Indications	562	17.6%
Major Depressive Disorder	494	15.4%
Chronic Fatigue	100	3.1%
Nocturnal enuresis	2	0.1%
None of the Above	1,159	36.2%

Table 3 - Contraindications in Year Prior to Index Event

	All		Patients with Atomoxetine IE	
	N=	%	N=	%
Substance or Alcohol Abuse/Dependence	1,138	35.6%	951	45.5%

Figure 4 assesses trends of utilization of ADHD medications in adults with concomitant substance use disorder. Trends in patients with substance use disorders appear consistent with trends in the overall population of patient’s prescribed ADHD therapy.

Figure 4: ADHD Patients with Concomitant Substance Use Disorder in the Year Prior



ED/Hospitalizations

Of the patients receiving ADHD medications, **Table 4** highlights those with hospitalizations/ED visits for any cause, and hospitalizations/ED visits due to overdose of drug or alcohol. Less than 1% of patients using ADHD medications were hospitalized or visited the ED for drug (including CNS stimulants) or alcohol overdose.

Table 4 - ED/Hospitalizations within 90 Days of Index Event		
	N=	3,200
All Cause ED/Hospitalizations	668	20.9%
ED/Hospitalizations due to overdose	25	0.8%

Dose Titration

Table 5 highlights dosage changes in patients with the same stimulant over 6 months. All ADHD medications were used appropriately and within the maximum dosage limits with the exception of armodafinil which has a max dosage of 250mg once daily. The most drastic increase in dosage was also for armodafinil, with an 88% increase in dosage after 6 months of use. The average starting dose was 200mg per day, and average dose 6 months after was 375mg per day.

Table 5 - Average Dose per Day at Index and 6 Months After Index					
For patients with 6 months sustained therapy on same HSN as index.					
	N = 244	Max Dose per day (mg)	Index Claim Avg Dose per Day (mg)	Claim Six Months After Avg Dose per Day (mg)	% Change
armodafinil (TABLET)		250	200	375	87.5%
atomoxetine HCl (CAPSULE)		100	41	64	56.1%
dexmethylphenidate HCl (CPBP 50-50)		30-50	40	40	0.0%
dextroamphetamine sulfate (CAPSULE ER)		40-60	10	9	-13.3%
dextroamphetamine/amphetamine (CAP ER 24H)		50	21	28	29.1%
dextroamphetamine/amphetamine (TABLET)		50	29	35	21.1%
lisdexamfetamine dimesylate (CAPSULE)		70	39	49	25.6%
methylphenidate HCl (TAB ER 24)		60	49	47	-4.5%
methylphenidate HCl (TABLET ER)		60	40	40	0.0%
methylphenidate HCl (TABLET)		60	28	36	29.4%
modafinil (TABLET)		200	161	200	24.1%

Discussion:

The results of this DUE are consistent with recent literature, showing an increase of ADHD diagnosis in adults.¹⁰ Based on the results in **Figure 3**, utilization of ADHD medications in adults has fluctuated, but ultimately increased from 11.9 to 13.15 PMPM x 1000 between 7/1/2014 and 12/1/2018. A significant portion of patients were receiving a stimulant medication without a relevant diagnosis reported in claims (36.2%). The proportion of patients has increased since 2015 when a prior evaluation in a similar population found that 26% of adults did not have a relevant diagnosis.¹³ Current NICE guideline for the treatment and diagnosis of adult ADHD recommends that adult patients presenting with ADHD symptoms, with or without a childhood diagnosis, be referred for assessment by a mental health specialist for proper diagnosis of ADHD.⁴

Although it appears from our data that the most frequently prescribed ADHD medication in adults was atomoxetine (65%), this result may be exaggerated, since atomoxetine is a carved out medication. Therefore the total population (denominator) includes the entire Medicaid population, including the CCOs, and is much larger (approximately 1 million members) than the FFS population alone (approximately 100,000 total members). Nonetheless, first line therapy recommendations for adult ADHD are lisdexamfetamine or methylphenidate.⁴ For unresponsive or intolerance to methylphenidate or potential of misuse/abuse, atomoxetine should be considered due to its unique mechanism of action. After atomoxetine, controlled-release formulations should be used due to less likelihood of abuse.¹⁵

It is also interesting to note that 36% of patients who were prescribed an ADHD medication had a diagnosis of substance or alcohol abuse disorder. This number is similar to data reported in 2016, in which 33% of adult patients also had a history of substance abuse.¹³ Additionally, between 2014 and 2018, there has been a slight increase in ADHD claims in patients with substance use disorder compared to the year prior. Stimulants and controlled-substance medications have a high abuse potential, and therefore it would be assumed that use of these agents should be cautioned in patients with known substance abuse and a higher baseline chance of abuse. However, research studies do not support the claim that stimulant treatments add to the risk of substance abuse in the patients with ADHD.¹⁴ The national comorbidity survey replication data showed 10-24% of adults with substance use disorder had ADHD.¹⁵⁻¹⁷ However, the literature consistently demonstrates that adults with ADHD are more likely to have comorbidities than adults without ADHD, including anxiety, bipolar disorder, depression, and drug or alcohol abuse.^{4,13,16} It is hypothesized that there is a neurobiological link between ADHD and substance use disorder due to evidence of structural brain abnormalities in individuals with ADHD.¹⁸ This illustrates the importance of patients having appropriate diagnoses for these medications, especially adults, and having the medications prescribed by a mental health specialist.

Based on the average dose per day at upon initial prescribing and 6 months afterwards, all medications had appropriate dose increases within maximum dosage limits with the exception of armodafinil. The armodafinil dose seen after six months of use was 350mg, which exceeds the maximum recommended dose of 150 to 250mg per day for narcolepsy, obstructive sleep apnea and shift-work disorder.¹⁹ Stimulants are found to have individual variability for dose response, which may be affected by slow/fast metabolizers.²⁰ In treatment of adult patients with ADHD, titration with discussion of response to drug as well as side effects is important to consider.²¹

Data collected by the OHA demonstrates an increase in stimulant and non-prescription methamphetamine overdose and related deaths in Oregon in the past several years. This was not validated by an assessment of claims for ED/hospitalizations due to drug overdose. Emergency department visits and hospitalization overall for any diagnosis in patients using ADHD medications was also relatively low. In the previous analysis of Medicaid data completed in 2016, the ED/hospitalization results within 90 days of ADHD medication use were also shown to be low, however hospitalizations due to drug overdose were not measured.¹³ This leads to the conclusion that the data collected by OHA showing an increase in overdose related death is most likely due to non-prescription methamphetamine use, and not prescribed stimulants.

Limitations:

All of the data collected and analyzed was claims data, which limits the ability to directly connect a patient's diagnosis with the medications being prescribed. Claims data only allows researchers to make associations and assumptions about why patients are taking certain medications of interest, especially if patients do not have a diagnosis code on file. Data regarding provider types was collected using specialty provider codes, in attempt to compare and contrast prescriptions coming from recognized mental health providers as opposed to non-mental health specialists. However, these codes may not reliably identify all recognized mental health specialties, and therefore made it difficult to infer how many prescriptions were from mental health specialists. Only claims data was assessed for index events. The data could be analyzed more in depth if recurrent patients and utilization was included in the report.

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Appendix 1:

Table A1: Codes identifying ADHD drugs in fee-for-service or managed care pharmacy or professional claims

GSN	Generic	Strength	mg per Unit	Formulation	ER	PDL	Max Daily Units
004999	DEXTROAMPHETAMINE/AMPHETAMINE	5 mg	5	TABLET	0	1	12
005000	DEXTROAMPHETAMINE/AMPHETAMINE	10 mg	10	TABLET	0	1	6
005001	DEXTROAMPHETAMINE/AMPHETAMINE	20 mg	20	TABLET	0	1	3
034359	DEXTROAMPHETAMINE/AMPHETAMINE	30 mg	30	TABLET	0	1	2
047131	DEXTROAMPHETAMINE/AMPHETAMINE	7.5 mg	7.5	TABLET	0	1	8
047132	DEXTROAMPHETAMINE/AMPHETAMINE	12.5 mg	12.5	TABLET	0	1	4.8
047133	DEXTROAMPHETAMINE/AMPHETAMINE	15 mg	15	TABLET	0	1	4
048701	DEXTROAMPHETAMINE/AMPHETAMINE	10 mg	10	CAP ER 24H	1	0	3
048702	DEXTROAMPHETAMINE/AMPHETAMINE	20 mg	20	CAP ER 24H	1	0	1.5
048703	DEXTROAMPHETAMINE/AMPHETAMINE	30 mg	30	CAP ER 24H	1	0	1
050428	DEXTROAMPHETAMINE/AMPHETAMINE	5 mg	5	CAP ER 24H	1	0	6
050429	DEXTROAMPHETAMINE/AMPHETAMINE	15 mg	15	CAP ER 24H	1	0	2
050430	DEXTROAMPHETAMINE/AMPHETAMINE	25 mg	25	CAP ER 24H	1	0	1.2
061443	METHYLPHENIDATE HCL	10 mg	10	CSBP 40-60	1	0	7.2
061444	METHYLPHENIDATE HCL	15 mg	15	CSBP 40-60	1	0	4.8
061445	METHYLPHENIDATE HCL	20 mg	20	CSBP 40-60	1	0	3.6
061446	METHYLPHENIDATE HCL	30 mg	30	CSBP 40-60	1	0	2.4
061447	METHYLPHENIDATE HCL	40 mg	40	CSBP 40-60	1	0	1.8
061448	METHYLPHENIDATE HCL	50 mg	50	CSBP 40-60	1	0	1.4
061449	METHYLPHENIDATE HCL	60 mg	60	CSBP 40-60	1	0	1.2
060615	METHYLPHENIDATE	10 mg /9 hr	10	PATCH TD24	1	1	3
060616	METHYLPHENIDATE	15 mg/ 9 hr	15	PATCH TD24	1	1	2
060617	METHYLPHENIDATE	20 mg/ 9 hr	20	PATCH TD24	1	1	1.5
060618	METHYLPHENIDATE	30 mg/ 9 hr	30	PATCH TD24	1	1	1
005009	DEXTROAMPHETAMINE SULFATE	10 mg	10	TABLET	0	0	4
005011	DEXTROAMPHETAMINE SULFATE	5 mg	5	TABLET	0	0	8
048982	DEXMETHYLPHENIDATE HCL	2.5 mg	2.5	TABLET	0	0	8
048983	DEXMETHYLPHENIDATE HCL	5 mg	5	TABLET	0	0	4

048984	DEXMETHYLPHENIDATE HCL	10 mg	10	TABLET	0	0	2
064090	DEXTROAMPHETAMINE SULFATE	5 mg/5 mL	1	SOLUTION	0	0	40
005005	DEXTROAMPHETAMINE SULFATE	10 mg	10	CAPSULE ER	1	0	6
005006	DEXTROAMPHETAMINE SULFATE	15 mg	15	CAPSULE ER	1	0	4
005007	DEXTROAMPHETAMINE SULFATE	5 mg	5	CAPSULE ER	1	0	12
075025	DEXTROAMPHETAMINE/AMPHETAMINE	2.5 mg/mL	2.5	SUS BP 24H	1	0	24
005002	AMPHETAMINE SULFATE	10 mg	10	TABLET	0	0	6
005003	AMPHETAMINE SULFATE	5 mg	5	TABLET	0	0	12
059190	DEXMETHYLPHENIDATE HCL	5 mg	5	CPBP 50-50	1	1	6 if <18 yo 8 if ≥18 yo
059191	DEXMETHYLPHENIDATE HCL	10 mg	10	CPBP 50-50	1	1	3 if <18 yo 4 if ≥18 yo
059192	DEXMETHYLPHENIDATE HCL	20 mg	20	CPBP 50-50	1	1	1.5 if <18 yo 2 if ≥18 yo
061317	DEXMETHYLPHENIDATE HCL	15 mg	15	CPBP 50-50	1	1	2 if <18 yo 2.7 if ≥18 yo
065909	DEXMETHYLPHENIDATE HCL	30 mg	30	CPBP 50-50	1	1	1 if <18 yo 1.3 if ≥18 yo
066611	DEXMETHYLPHENIDATE HCL	40 mg	40	CPBP 50-50	1	1	0.75 if <18 yo 1 if ≥18 yo
067692	DEXMETHYLPHENIDATE HCL	25 mg	25	CPBP 50-50	1	1	1.2 if <18 yo 1.6 if ≥18 yo
067693	DEXMETHYLPHENIDATE HCL	35 mg	35	CPBP 50-50	1	1	0.86 if <18 yo 1.1 if ≥18 yo
005014	METHAMPHETAMINE HCL	5 mg	5	TABLET	0	0	Not established
054676	METHYLPHENIDATE HCL	2.5 mg	2.5	TAB CHEW	0	0	24
054677	METHYLPHENIDATE HCL	5 mg	5	TAB CHEW	0	0	12
054678	METHYLPHENIDATE HCL	10 mg	10	TAB CHEW	0	0	6
054679	METHYLPHENIDATE HCL	5 mg/5 mL	1	SOLUTION	0	0	60
054680	METHYLPHENIDATE HCL	10 mg/5 mL	2	SOLUTION	0	0	30
004029	METHYLPHENIDATE HCL	20 mg	20	TABLET ER	1	0	3.6
044072	METHYLPHENIDATE HCL	10 mg	10	TABLET ER	1	0	7.2
045981	METHYLPHENIDATE HCL	18 mg	18	TAB ER 24	1	0	4

045982	METHYLPHENIDATE HCL	36 mg	36	TAB ER 24	1	0	2
047318	METHYLPHENIDATE HCL	54 mg	54	TAB ER 24	1	0	1.3
050172	METHYLPHENIDATE HCL	27 mg	27	TAB ER 24	1	0	2.7
004026	METHYLPHENIDATE HCL	10 mg	10	TABLET	0	1	10
004027	METHYLPHENIDATE HCL	20 mg	20	TABLET	0	1	3
004028	METHYLPHENIDATE HCL	5 mg	5	TABLET	0	1	12
053056	METHYLPHENIDATE HCL	10 mg	10	CPBP 30-70	1	0	7.2
053057	METHYLPHENIDATE HCL	20 mg	20	CPBP 30-70	1	0	3.6
053058	METHYLPHENIDATE HCL	30 mg	30	CPBP 30-70	1	0	2.4
060545	METHYLPHENIDATE HCL	40 mg	40	CPBP 30-70	1	0	1.8
060546	METHYLPHENIDATE HCL	50 mg	50	CPBP 30-70	1	0	1.4
060547	METHYLPHENIDATE HCL	60 mg	60	CPBP 30-70	1	0	1.2
075263	METHYLPHENIDATE HCL	20 mg	20	TAB CBP24H	1	0	3.6
075264	METHYLPHENIDATE HCL	30 mg	30	TAB CBP24H	1	0	2.4
075265	METHYLPHENIDATE HCL	40 mg	40	TAB CBP24H	1	0	1.8
070374	METHYLPHENIDATE HCL	5 mg/mL (25 mg/5 mL)	5	SU ER RC24	1	0	14.4
053059	METHYLPHENIDATE HCL	20 mg	20	CPBP 50-50	1	0	3.6
053060	METHYLPHENIDATE HCL	30 mg	30	CPBP 50-50	1	0	2.4
053061	METHYLPHENIDATE HCL	40 mg	40	CPBP 50-50	1	0	1.8
053974	METHYLPHENIDATE HCL	10 mg	10	CPBP 50-50	1	0	7.2
072092	METHYLPHENIDATE HCL	60 mg	60	CPBP 50-50	1	0	1.2
051489	ATOMOXETINE HCL	10 mg	10	CAPSULE	0	1	10
051490	ATOMOXETINE HCL	18 mg	18	CAPSULE	0	1	5.6
051491	ATOMOXETINE HCL	25 mg	25	CAPSULE	0	1	4
051492	ATOMOXETINE HCL	40 mg	40	CAPSULE	0	1	2.5
051493	ATOMOXETINE HCL	60 mg	60	CAPSULE	0	1	1.7
060390	ATOMOXETINE HCL	80 mg	80	CAPSULE	0	1	1.25
060391	ATOMOXETINE HCL	100 mg	100	CAPSULE	0	1	1
062283	LISDEXAMFETAMINE DIMESYLATE	30 mg	30	CAPSULE	0	1	2.3
062284	LISDEXAMFETAMINE DIMESYLATE	50 mg	50	CAPSULE	0	1	1.4
062285	LISDEXAMFETAMINE DIMESYLATE	70 mg	70	CAPSULE	0	1	1
063645	LISDEXAMFETAMINE DIMESYLATE	20 mg	20	CAPSULE	0	1	3.5

063646	LISDEXAMFETAMINE DIMESYLATE	40 mg	40	CAPSULE	0	1	1.75
063647	LISDEXAMFETAMINE DIMESYLATE	60 mg	60	CAPSULE	0	1	1.2
073292	LISDEXAMFETAMINE DIMESYLATE	10 mg	10	CAPSULE	0	1	7
005009	DEXTROAMPHETAMINE SULFATE	10 mg	10	TABLET	0	0	4
005010	DEXTROAMPHETAMINE SULFATE	15 mg	15	TABLET	0	0	2.7
005011	DEXTROAMPHETAMINE SULFATE	5 mg	5	TABLET	0	0	8
071048	DEXTROAMPHETAMINE SULFATE	2.5 mg	2.5	TABLET	0	0	16
071049	DEXTROAMPHETAMINE SULFATE	7.5 mg	7.5	TABLET	0	0	5.3
072313	DEXTROAMPHETAMINE SULFATE	20 mg	20	TABLET	0	0	2
072314	DEXTROAMPHETAMINE SULFATE	30 mg	30	TABLET	0	0	1.3
025848	MODAFINIL	100 mg	100	TABLET	0	0	2
041478	MODAFINIL	200 mg	200	TABLET	0	0	1
062819	ARMODAFINIL	150 mg	150	TABLET	0	0	1
062820	ARMODAFINIL	50 mg	50	TABLET	0	0	5
062821	ARMODAFINIL	250 mg	250	TABLET	0	0	1
072017	ARMODAFINIL	200 mg	200	TABLET	0	0	1

Abbreviations: PDL = preferred drug list

HSN = hierarchical ingredient code list (HICL) sequence number as reported by First DataBank™

Table A2: Indications and Contraindications/Precautions for ADHD Medications

*Approved for lisdexamfetamine only

ICD-9	Diagnosis	ICD-10	Diagnosis
FDA Labeled Indications			
314.00-314.9	Attention-deficit hyperactivity disorder (ADHD)/ Attention deficit disorder (ADD)	F90.9 F90.1 F90.2 F90.8 F90.9	Attention-deficit hyperactivity disorder (ADHD)/ Attention deficit disorder (ADD) Attention-deficit hyperactivity disorders Attention-deficit hyperactivity disorder, predominantly inattentive type Attention-deficit hyperactivity disorder, predominantly hyperactive type Attention-deficit hyperactivity disorder, combined type Attention-deficit hyperactivity disorder, other type Attention-deficit hyperactivity disorder, unspecified type
347.10-347.11	Narcolepsy - symptomatic management	Not included	

307.5	Binge Eating Disorder*	F50.81, F50.02	Binge Eating Disorder*, binge eating/purging type
Unfunded FDA Labeled Indications			
278.01	Exogenous obesity	E66.01	Morbid (severe) obesity due to excess calories/Exogenous obesity
Unlabeled Indications			
296.3, 296.20- 296.22, 296.25- 296.26, 296.90- 296.99, 298.0, 311, 625.4	Major depressive disorder (MDD) recurrent, unspecified	F32.0 F32.1 F32.2 F32.3 F32.4 F32.5 F33.0 F33.1 F33.2 F33.3 F33.4 F33.40 F33.41 F33.42	Major depressive disorder, single episode Major depressive disorder, single episode, mild Major depressive disorder, single episode, moderate Major depressive disorder, single episode, severe without psychotic features Major depressive disorder, single episode, severe with psychotic features Major depressive disorder, single episode, severe with psychotic features Major depressive disorder, single episode, in partial remission Major depressive disorder, single episode, in full remission Major depressive disorder (MDD) recurrent, unspecified Major depressive disorder, recurrent, mild Major depressive disorder, recurrent, moderate Major depressive disorder, recurrent, severe without psychotic features Major depressive disorder, recurrent, severe with psychotic features Major depressive disorder, recurrent, in remission Major depressive disorder, recurrent, in remission, unspecified Major depressive disorder, recurrent, in partial remission Major depressive disorder, recurrent, in full remission
788.36	Nocturnal enuresis	N39.44	Nocturnal enuresis
<i>Chronic Fatigue</i>			
780.71- 780.72, 780.79, 140.xx, 209.xx	Fatigue in adult cancer survivors	R53.0	Fatigue in adult cancer survivors
340.xx	Multiple Sclerosis-related fatigue		
780.71	Chronic Fatigue Syndrome	R53.82	Chronic fatigue, unspecified
None of the Above			
Contraindications or precautions			
<i>Substance or Alcohol Abuse/Dependence</i>			
305.00- 305.03 291.81 291.0	Alcohol dependence syndrome Alcohol Abuse Alcohol withdrawal delirium Alcohol-induced persisting amnesic disorder	R780 F10.23 F10.2 F10.239	Finding of alcohol in blood Alcohol dependence and withdrawal Alcohol dependence Dependence on alcohol with withdrawal

291.1	Alcohol-induced persisting dementia	F10	Alcohol related disorders
291.2	Alcohol-induced psychotic disorder with	F1010	Alcohol abuse, uncomplicated
291.3	hallucinations	F10120	Alcohol abuse with intoxication, uncomplicated
291.4	Idiosyncratic alcohol intoxication	F10121	Alcohol abuse with intoxication delirium
291.5	Alcohol-induced psychotic disorder with delusions	F10129	Alcohol abuse with intoxication, unspecified
291.8	Other specified alcohol-induced mental disorders	F1014	Alcohol abuse with alcohol-induced mood disorder
291.82	Alcohol withdrawal	F10150	Alcohol abuse with alcohol-induce psychotic disorder with delusions
291.89	Alcohol-induced sleep disorders	F10151	Alcohol abuse with alcohol-induce psychotic disorder with hallucinations
291.9	Other alcohol-induced disorders	F10159	Alcohol abuse with alcohol-induced psychotic disorder, unspecified
303.00–	Unspecified alcohol-induced mental disorders	F10180	Alcohol abuse with alcohol-induced anxiety disorder
303.03	Acute alcohol intoxication	F10181	Alcohol abuse with alcohol-induced sexual dysfunction
303.90–	Other and unspecified alcohol dependence	F10182	Alcohol abuse with alcohol-induced sleep disorder
303.93		F10188	Alcohol abuse with other alcohol-induced disorder
		F1019	Alcohol abuse with unspecified alcohol-induced disorder
		F1020	Alcohol dependence, uncomplicated
		F1021	Alcohol dependence, in remission
		F10220	Alcohol dependence with intoxication, uncomplicated
		F10221	Alcohol dependence with intoxication delirium
		F10229	Alcohol dependence with intoxication, unspecified
		F10230	Alcohol dependence with withdrawal, uncomplicated
		F10231	Alcohol dependence with withdrawal delirium
		F10232	Alcohol dependence with withdrawal with perceptual disturbance
		F10239	Alcohol dependence with withdrawal, unspecified
		F1024	Alcohol dependence with alcohol-induced mood disorder
		F10250	Alcohol dependence with alcohol-induce psychotic disorder with delusions
		F10251	Alcohol dependence with alcohol-induce psychotic disorder with hallucinations
		F10259	Alcohol dependence with alcohol-induce psychotic disorder, unspecified
		F10280	Alcohol dependence with alcohol-induced anxiety disorder
		F10281	Alcohol dependence with alcohol-induced sexual dysfunction
		F10282	Alcohol dependence with alcohol-induced sleep disorder
		F10288	Alcohol dependence with other alcohol-induced disorder
	F1029	Alcohol dependence with unspecified alcohol-induced disorder	
	F10920	Alcohol use, unspecified with intoxication, uncomplicated	
	F10921	Alcohol use, unspecified with intoxication delirium	
	F10929	Alcohol use, unspecified with intoxication, unspecified	
	F1094	Alcohol use, unspecified with alcohol-induced mood disorder	
	F10950	Alcohol use, unspecified with alcohol-induce psychotic disorder with delusions	
	F10951	Alcohol use, unspecified with alcohol-induce psychotic disorder with	
	F10959	hallucinations	

		F10980 F10981 F10982 F10288 F1029 F10920 F10921 F10929 F1094 F10950 F10951 F10959 F10980 F10981 F10982 F10988 F1099	Alcohol use, unspecified with alcohol-induced psychotic disorder, unspecified Alcohol use, unspecified with alcohol-induced anxiety disorder Alcohol use, unspecified with alcohol-induced sexual dysfunction Alcohol use, unspecified with alcohol-induced sleep disorder Alcohol use, unspecified with other alcohol-induced disorder Alcohol use, unspecified with unspecified alcohol-induced disorder
304.00– 304.03 304.70– 304.73 305.50– 305.53 304.80– 304.83 304.90– 304.93 Other, mixed or unspecified drug abuse V654.2	Opioid type dependence Combinations of opioids with any other Nondependent opioid abuse Combinations excluding opioids Unspecified drug dependence Other, mixed or unspecified drug abuse Counseling, substance use	R781 F1110 F11120 F11121 F11122 F11129 F1114 F11150 F11151 F11159 F11181 F11182 F11188 F1119	Finding of opiate drug in blood Opioid abuse, uncomplicated Opioid abuse with intoxication, uncomplicated Opioid abuse with intoxication delirium Opioid abuse with intoxication with perceptual disturbance Opioid abuse with intoxication, unspecified Opioid abuse with opioid-induced mood disorder Opioid abuse with opioid-induced psychotic disorder with delusions Opioid abuse with opioid-induced psychotic disorder with hallucinations Opioid abuse with opioid-induced psychotic disorder, unspecified Opioid abuse with opioid-induced sexual dysfunction Opioid abuse with opioid-induced sleep disorder Opioid abuse with other opioid-induced disorder Opioid abuse with unspecified opioid-induced disorder
304.30– 304.33 305.20– 305.23	Cannabis abuse Cannabis dependence Nondependent cannabis abuse	F12.9 F12.92 F12.921 F12.922 F12.929 F12.95 F12.951	Cannabis use, unspecified Cannabis use, unspecified with intoxication Cannabis use, unspecified with intoxication delirium Cannabis use, unspecified with intoxication with perceptual disturbance Cannabis use, unspecified with intoxication, unspecified Cannabis use, unspecified with psychotic disorder Cannabis use, unspecified with psychotic disorder with hallucinations

		F12.959 F12.98 F12.980 F12.988 F12.99	Cannabis use, unspecified with psychotic disorder, unspecified Cannabis use, unspecified with other cannabis-induced disorder Cannabis use, unspecified with anxiety disorder
303.90- 303.93	Other and unspecific alcohol dependence	F1120 F1121 F11220 F11221 F11222 F11229 F1123 F1124 F11250 F11251 F11259 F11281 F11282 F11288 F1129 F1190 F11920 F11921 F11922 F11929 F1193 F1194 F11950 F11951 F11959 F11981 F11988 F1199 F1210	Opioid dependence, uncomplicated Opioid dependence, in remission Opioid dependence with intoxication, uncomplicated Opioid dependence with intoxication delirium Opioid dependence with intoxication with perceptual disturbance Opioid dependence with intoxication, unspecified Opioid dependence with withdrawal Opioid dependence with opioid-induced mood disorder Opioid dependence with opioid-induced psychotic disorder with delusions Opioid dependence with opioid-induced psychotic disorder with hallucinations Opioid dependence with opioid-induced psychotic disorder, unspecified Opioid dependence with opioid-induced sexual dysfunction Opioid dependence with opioid-induced sleep disorder Opioid dependence with other opioid-induced disorder Opioid dependence with unspecified opioid-induced disorder Opioid use, unspecified, uncomplicated Opioid use, unspecified with intoxication, uncomplicated Opioid use, unspecified with intoxication delirium Opioid use, unspecified with intoxication with perceptual disturbance Opioid use, unspecified with intoxication, unspecified Opioid use, unspecified with withdrawal Opioid use, unspecified with opioid-induced mood disorder Opioid use, unspecified with opioid-induced psychotic disorder with delusions Opioid use, unspecified with opioid-induced psychotic disorder with Hallucinations Opioid use, unspecified with opioid-induced psychotic disorder, unspecified Opioid use, unspecified with opioid-induced sexual dysfunction Opioid use, unspecified with opioid-induced sleep disorder Opioid use, unspecified with other opioid-induced disorder Opioid use, unspecified with unspecified opioid-induced disorder
304.10- 304.13 305.40- 305.43	Sedatives, hypnotics, or anxiolytic dependence Nondependent sedative, hypnotic, or anxiolytic abuse	F1310 F13120 F13121 F13129	Sedative, hypnotic or anxiolytic abuse, uncomplicated Sedative, hypnotic or anxiolytic abuse with intoxication, uncomplicated Sedative, hypnotic or anxiolytic abuse with intoxication delirium Sedative, hypnotic or anxiolytic abuse with intoxication, unspecified

	F1314	Sedative, hypnotic or anxiolytic abuse with sedative, hypnotic or anxiolytic induced mood disorder
	F13150	
	F13151	Sedative, hypnotic or anxiolytic abuse with sedative, hypnotic or anxiolytic induced psychotic disorder with delusions
	F13159	
	F13180	Sedative, hypnotic or anxiolytic abuse with sedative, hypnotic or anxiolytic induced
	F13181	
	F13182	psychotic disorder with hallucinations
	F13188	Sedative, hypnotic or anxiolytic abuse with sedative, hypnotic or anxiolytic induced psychotic disorder, unspecified
	F1319	
	F1320	Sedative, hypnotic or anxiolytic abuse with sedative, hypnotic or anxiolytic induced anxiety disorder
	F1321	
	F13220	Sedative, hypnotic or anxiolytic abuse with sedative, hypnotic or anxiolytic induced
	F13221	
	F13229	sexual dysfunction
	F13230	Sedative, hypnotic or anxiolytic abuse with sedative, hypnotic or anxiolytic induced sleep disorder
	F13231	
	F13232	Sedative, hypnotic or anxiolytic abuse with other sedative, hypnotic or anxiolytic-induced disorder
	F13239	
	F1324	Sedative, hypnotic or anxiolytic abuse with unspecified sedative, hypnotic or anxiolytic-induced disorder
	F13250	
	F13251	Sedative, hypnotic or anxiolytic dependence, uncomplicated
	F13259	Sedative, hypnotic or anxiolytic dependence, in remission
	F13280	Sedative, hypnotic or anxiolytic dependence with intoxication, uncomplicated
	F13281	Sedative, hypnotic or anxiolytic dependence with intoxication delirium
	F13282	Sedative, hypnotic or anxiolytic dependence with intoxication, unspecified
	F13288	Sedative, hypnotic or anxiolytic dependence with withdrawal, uncomplicated
	F1329	Sedative, hypnotic or anxiolytic dependence with withdrawal delirium
	F1390	Sedative, hypnotic or anxiolytic dependence with withdrawal with perceptual Disturbance
	F13920	
	F13921	Sedative, hypnotic or anxiolytic dependence with withdrawal, unspecified
	F13929	Sedative, hypnotic or anxiolytic dependence with sedative, hypnotic or anxiolytic-induced mood disorder
	F13930	
	F13931	Sedative, hypnotic or anxiolytic dependence with sedative, hypnotic or anxiolytic-induced psychotic disorder with delusions
	F13932	
	F13939	Sedative, hypnotic or anxiolytic dependence with sedative, hypnotic or anxiolytic-induced psychotic disorder with hallucinations
	F1394	
	F13950	Sedative, hypnotic or anxiolytic dependence with sedative, hypnotic or anxiolytic-induced psychotic disorder, unspecified
	F13951	
	F13959	Sedative, hypnotic or anxiolytic dependence with sedative, hypnotic or

		F13980	anxiolytic-induced anxiety disorder
		F13981	Sedative, hypnotic or anxiolytic dependence with sedative, hypnotic or
		F13982	anxiolytic-induced sexual dysfunction
		F13988	Sedative, hypnotic or anxiolytic dependence with sedative, hypnotic or
		F1399	anxiolytic-induced sleep disorder
			Sedative, hypnotic or anxiolytic dependence with other sedative, hypnotic or
			anxiolytic-induced disorder
			Sedative, hypnotic or anxiolytic dependence with unspecified sedative, hypnotic
			or anxiolytic-induced disorder
			Sedative, hypnotic, or anxiolytic use, unspecified, uncomplicated
			Sedative, hypnotic, or anxiolytic use, unspecified with intoxication,
			Uncomplicated
			Sedative, hypnotic, or anxiolytic use, unspecified with intoxication delirium
			Sedative, hypnotic, or anxiolytic use, unspecified with intoxication, unspecified
			Sedative, hypnotic, or anxiolytic use, unspecified with withdrawal,
			uncomplicated
			Sedative, hypnotic, or anxiolytic use, unspecified with withdrawal delirium
			Sedative, hypnotic, or anxiolytic use, unspecified with withdrawal with
			perceptual disturbances
			Sedative, hypnotic, or anxiolytic use, unspecified with withdrawal, unspecified
			Sedative, hypnotic, or anxiolytic use, unspecified with sedative, hypnotic, or
			anxiolytic-induced mood disorder
			Sedative, hypnotic, or anxiolytic use, unspecified with sedative, hypnotic, or
			anxiolytic-induced psychotic disorder with delusions
			Sedative, hypnotic, or anxiolytic use, unspecified with sedative, hypnotic, or
			anxiolytic-induced psychotic disorder with hallucinations
			Sedative, hypnotic, or anxiolytic use, unspecified with sedative, hypnotic, or
			anxiolytic-induced psychotic disorder with, unspecified
			Sedative, hypnotic, or anxiolytic use, unspecified with sedative, hypnotic, or
			anxiolytic-induced anxiety disorder
			Sedative, hypnotic, or anxiolytic use, unspecified with sedative, hypnotic, or
			anxiolytic-induced sexual dysfunction
			Sedative, hypnotic or anxiolytic use, unspecified with sedative, hypnotic, or
			anxiolytic-induced sleep disorder
			Sedative, hypnotic or anxiolytic use, unspecified with other sedative, hypnotic,
			or anxiolytic-induced disorder
			Sedative, hypnotic or anxiolytic use, unspecified with unspecified sedative,
			hypnotic, or anxiolytic-induced disorder

<p>304.20– 304.23 305.60– 305.63</p>	<p>Cocaine dependence Nondependent cocaine abuse</p>	<p>R782 F1410 F14120 F14121 F14122 F14129 F1414 F14150 F14151 F14159 F14180 F14181 F14182 F14188 F1419 F1420 F1421 F14220 F14221 F14222 F14229 F1423 F1424 F14250 F14251 F14259 F14280 F14281 F14282 F14288 F1429 F1490 F14920 F14921 F14922 F14929 F1494 F14950 F14951</p>	<p>Finding of cocaine in blood Cocaine abuse, uncomplicated Cocaine abuse with intoxication, uncomplicated Cocaine abuse with intoxication with delirium Cocaine abuse with intoxication with perceptual disturbance Cocaine abuse with intoxication, unspecified Cocaine abuse with cocaine-induced mood disorder Cocaine abuse with cocaine-induced psychotic disorder with delusions Cocaine abuse with cocaine-induced psychotic disorder with hallucinations Cocaine abuse with cocaine-induced psychotic disorder, unspecified Cocaine abuse with cocaine-induced anxiety disorder Cocaine abuse with cocaine-induced sexual dysfunction Cocaine abuse with cocaine-induced sleep disorder Cocaine abuse with other cocaine-induced disorder Cocaine abuse with unspecified cocaine-induced disorder Cocaine dependence, uncomplicated Cocaine dependence, in remission Cocaine dependence with intoxication, uncomplicated Cocaine dependence with intoxication delirium Cocaine dependence with intoxication with perceptual disturbance Cocaine dependence with intoxication, unspecified Cocaine dependence with withdrawal Cocaine dependence with cocaine-induced mood disorder Cocaine dependence with cocaine-induced psychotic disorder with delusions Cocaine dependence with cocaine-induced psychotic disorder with hallucinations Cocaine dependence with cocaine-induced psychotic disorder, unspecified Cocaine dependence with cocaine-induced anxiety disorder Cocaine dependence with cocaine-induced sexual dysfunction Cocaine dependence with cocaine-induced sleep disorder Cocaine dependence with other cocaine-induced disorder Cocaine dependence with unspecified cocaine-induced disorder Cocaine use, unspecified, uncomplicated Cocaine use, unspecified with intoxication, uncomplicated Cocaine use, unspecified with intoxication delirium Cocaine use, unspecified with intoxication with perceptual disturbance Cocaine use, unspecified with intoxication, unspecified Cocaine use, unspecified with cocaine-induced mood disorder</p>
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		F14959 F14980 F14981 F14982 F14988 F1499	Cocaine use, unspecified with cocaine-induced psychotic disorder with Delusions Cocaine use, unspecified with cocaine-induced psychotic disorder with hallucinations Cocaine use, unspecified with cocaine-induced psychotic disorder, unspecified Cocaine use, unspecified with cocaine-induced anxiety disorder Cocaine use, unspecified with cocaine-induced sexual dysfunction Cocaine use, unspecified with cocaine-induced sleep disorder Cocaine use, unspecified with other cocaine-induced disorder Cocaine use, unspecified with unspecified cocaine-induced disorder
304.40– 304.43 305.70– 305.73	Amphetamines dependence Nondependent amphetamine abuse	F1510 F15120 F15121 F15122 F15129 F1514 F15150 F15151 F15159 F15180 F15181 F15182 F15188 F1519 F1520 F1521 F15220 F15221 F15222 F15229 F1523 F1524 F15250 F15251 F15259 F15280 F15281 F15282 F15288	Other stimulant abuse, uncomplicated Other stimulant abuse with intoxication, uncomplicated Other stimulant abuse with intoxication delirium Other stimulant abuse with intoxication with perceptual disturbance Other stimulant abuse with intoxication, unspecified Other stimulant abuse with stimulant-induced mood disorder Other stimulant abuse with stimulant-induced psychotic disorder with delusions Other stimulant abuse with stimulant-induced psychotic disorder with hallucinations Other stimulant abuse with stimulant-induced psychotic disorder, unspecified Other stimulant abuse with stimulant-induced anxiety disorder Other stimulant abuse with stimulant-induced sexual dysfunction Other stimulant abuse with stimulant-induced sleep disorder Other stimulant abuse with other stimulant-induced disorder Other stimulant abuse with unspecified stimulant-induced disorder Other stimulant dependence, uncomplicated Other stimulant dependence, in remission Other stimulant dependence with intoxication, uncomplicated Other stimulant dependence with intoxication delirium Other stimulant dependence with intoxication with perceptual disturbance Other stimulant dependence with intoxication, unspecified Other stimulant dependence with withdrawal Other stimulant dependence with stimulant-induced mood disorder Other stimulant dependence with stimulant-induced psychotic disorder with delusions Other stimulant dependence with stimulant-induced psychotic disorder with hallucinations Other stimulant dependence with stimulant-induced psychotic disorder, Unspecified

		<p>F1529 F1590 F15920 F15921 F15922 F15929 F1593 F1594 F15950 F15951 F15959 F15980 F15981 F15982 F15988 F1599</p>	<p>Other stimulant dependence with stimulant-induced anxiety disorder Other stimulant dependence with stimulant-induced sexual dysfunction Other stimulant dependence with stimulant-induced sleep disorder Other stimulant dependence with other stimulant-induced disorder Other stimulant dependence with unspecified stimulant-induced disorder Other stimulant use, unspecified, uncomplicated Other stimulant use, unspecified with intoxication, uncomplicated Other stimulant use, unspecified with intoxication delirium Other stimulant use, unspecified with intoxication with perceptual disturbance Other stimulant use, unspecified with intoxication, unspecified Other stimulant use, unspecified with withdrawal Other stimulant use, unspecified with stimulant-induced mood disorder Other stimulant use, unspecified with stimulant-induced psychotic disorder with delusions Other stimulant use, unspecified with stimulant-induced psychotic disorder with hallucinations Other stimulant use, unspecified with stimulant-induced psychotic disorder, unspecified Other stimulant use, unspecified with stimulant-induced anxiety disorder Other stimulant use, unspecified with stimulant-induced sexual dysfunction Other stimulant use, unspecified with stimulant-induced sleep disorder Other stimulant use, unspecified with other stimulant-induced disorder Other stimulant use, unspecified with unspecified stimulant-induced disorder</p>
<p>304.50– 304.53 305.30– 305.33</p>	<p>Hallucinogen dependence Nondependent hallucinogen abuse</p>	<p>R783 F1610 F16120 F16121 F16122 F16129 F1614 F16150 F16151 F16159 F16180 F16183 F16188 F1619 F1620</p>	<p>Finding of hallucinogen in blood Hallucinogen abuse, uncomplicated Hallucinogen abuse with intoxication, uncomplicated Hallucinogen abuse with intoxication with delirium Hallucinogen abuse with intoxication with perceptual disturbance Hallucinogen abuse with intoxication, unspecified Hallucinogen abuse with hallucinogen-induced mood disorder Hallucinogen abuse with hallucinogen-induced psychotic disorder with delusions Hallucinogen abuse with hallucinogen-induced psychotic disorder with hallucinations Hallucinogen abuse with hallucinogen-induced psychotic disorder, unspecified Hallucinogen abuse with hallucinogen-induced anxiety disorder Hallucinogen abuse with hallucinogen persisting perception disorder (flashbacks)</p>

		F1621 F16220 F16221 F16229 F1624 F16250 F16251 F16259 F16280 F16283 F16288 F1629 F1690 F16920 F16921 F16929 F1694 F16950 F16951 F16959 F16980 F16983 F16988 F1699	Hallucinogen abuse with other hallucinogen-induced disorder Hallucinogen abuse with unspecified hallucinogen-induced disorder Hallucinogen dependence, uncomplicated Hallucinogen dependence, in remission Hallucinogen dependence with intoxication, uncomplicated Hallucinogen dependence with intoxication with delirium Hallucinogen dependence with intoxication, unspecified Hallucinogen dependence with hallucinogen-induced mood disorder Hallucinogen dependence with hallucinogen-induced psychotic disorder with delusions Hallucinogen dependence with hallucinogen-induced psychotic disorder with hallucinations Hallucinogen dependence with hallucinogen-induced psychotic disorder, unspecified Hallucinogen dependence with hallucinogen-induced anxiety disorder Hallucinogen dependence with hallucinogen persisting perception disorder (flashbacks) Hallucinogen dependence with other hallucinogen-induced disorder Hallucinogen dependence with unspecified hallucinogen-induced disorder Hallucinogen use, unspecified, uncomplicated Hallucinogen use, unspecified with intoxication, uncomplicated Hallucinogen use, unspecified with intoxication with delirium Hallucinogen use, unspecified with intoxication, unspecified Hallucinogen use, unspecified with hallucinogen-induced mood disorder Hallucinogen use, unspecified with hallucinogen-induced psychotic disorder with delusions Hallucinogen use, unspecified with hallucinogen-induced psychotic disorder with hallucinations Hallucinogen use, unspecified with hallucinogen-induced psychotic disorder, unspecified Hallucinogen use, unspecified with hallucinogen-induced anxiety disorder Hallucinogen use, unspecified with hallucinogen persisting perception disorder (flashbacks) Hallucinogen use, unspecified with other hallucinogen-induced disorder Hallucinogen use, unspecified with unspecified hallucinogen-induced disorder
		F1810 F18120 F18121 F18129	Inhalant abuse, uncomplicated Inhalant abuse with intoxication, uncomplicated Inhalant abuse with intoxication delirium Inhalant abuse with intoxication, unspecified

		F1814	Inhalant abuse with inhalant-induced mood disorder
		F18150	Inhalant abuse with inhalant-induced psychotic disorder with delusions
		F18151	Inhalant abuse with inhalant-induced psychotic disorder with hallucinations
		F18159	Inhalant abuse with inhalant-induced psychotic disorder, unspecified
		F1817	Inhalant abuse with inhalant-induced dementia
		F18180	Inhalant abuse with inhalant-induced anxiety disorder
		F18188	Inhalant abuse with other inhalant-induced disorder
		F1819	Inhalant abuse with unspecified inhalant-induced disorder
		F1820	Inhalant dependence, uncomplicated
		F1821	Inhalant dependence, in remission
		F18220	Inhalant dependence with intoxication, uncomplicated
		F18221	Inhalant dependence with intoxication delirium
		F18229	Inhalant dependence with intoxication, unspecified
		F1824	Inhalant dependence with inhalant-induced mood disorder
		F18250	Inhalant dependence with inhalant-induced psychotic disorder with delusions
		F18251	Inhalant dependence with inhalant-induced psychotic disorder with
		F18259	hallucinations
		F1827	Inhalant dependence with inhalant-induced psychotic disorder, unspecified
		F18280	Inhalant dependence with inhalant-induced dementia
		F18288	Inhalant dependence with inhalant-induced anxiety disorder
		F1829	Inhalant dependence with other inhalant-induced disorder
		F1890	Inhalant dependence with unspecified inhalant-induced disorder
		F18920	Inhalant use, unspecified, uncomplicated
		F18921	Inhalant use, unspecified with intoxication, uncomplicated
		F18929	Inhalant use, unspecified with intoxication with delirium
		F1894	Inhalant use, unspecified with intoxication, unspecified
		F18950	Inhalant use, unspecified with inhalant-induced mood disorder
		F18951	Inhalant use, unspecified with inhalant-induced psychotic disorder with
		F18959	Delusions
		F18980	Inhalant use, unspecified with inhalant-induced psychotic disorder with
		F18988	hallucinations
		F1899	Inhalant use, unspecified with inhalant-induced psychotic disorder, unspecified
			Inhalant use, unspecified with inhalant-induced anxiety disorder
			Inhalant use, unspecified with other inhalant-induced disorder
			Inhalant use, unspecified with unspecified inhalant-induced disorder
292.0	Drug withdrawal	R785	Finding of other psychotropic drug in blood
292.11	Drug-induced psychotic disorder with delusions	R784	Finding of other drugs of addictive potential in blood
292.12	Drug-induced psychotic disorder with hallucinations	F1910	Other psychoactive substance abuse, uncomplicated
292.2	Pathological drug intoxication	F19120	Other psychoactive substance abuse with intoxication, uncomplicated

292.81	Drug-induced delirium	F19121	Other psychoactive substance abuse with intoxication delirium
292.82	Drug-induced persistent dementia	F19122	Other psychoactive substance abuse with intoxication with perceptual
292.83	Drug-induced persistent amnesic disorder	F19129	disturbances
292.84	Drug-induced mood disorder	F1914	Other psychoactive substance abuse with intoxication, unspecified
292.89	Other drug-induced mental disorder	F19150	Other psychoactive substance abuse with psychoactive substance-induced
292.9	Unspecified drug-induced mental disorder	F19151	mood Disorder
		F19159	Other psychoactive substance abuse with psychoactive substance-induced
		F19180	psychotic disorder with delusions
		F19181	Other psychoactive substance abuse with psychoactive substance-induced
		F19182	psychotic disorder with hallucinations
		F19188	Other psychoactive substance abuse with psychoactive substance-induced
		F1919	psychotic disorder, unspecified
		F1920	Other psychoactive substance abuse with psychoactive substance-induced
		F1921	anxiety disorder
		F19220	Other psychoactive substance abuse with psychoactive substance-induced
		F19221	sexual dysfunction
		F19222	Other psychoactive substance abuse with psychoactive substance-induced sleep
		F19229	disorder
		F19230	Other psychoactive substance abuse with other psychoactive substance-induced
		F19231	disorder
		F19232	Other psychoactive substance abuse with unspecified substance-induced
		F19239	disorder
		F1924	Other psychoactive substance dependence, uncomplicated
		F19250	Other psychoactive substance dependence, in remission
		F19251	Other psychoactive substance dependence with intoxication, uncomplicated
		F19259	Other psychoactive substance dependence with intoxication delirium
		F19280	Other psychoactive substance dependence with intoxication with perceptual
		F19281	disturbance
		F19282	Other psychoactive substance dependence with intoxication, unspecified
		F19288	Other psychoactive substance dependence with withdrawal, uncomplicated
		F1929	Other psychoactive substance dependence with withdrawal delirium
		F1990	Other psychoactive substance dependence with withdrawal with perceptual
		F19920	disturbance
		F19921	Other psychoactive substance dependence with withdrawal, unspecified
		F19922	Other psychoactive substance dependence with psychoactive substance-
		F19929	induced mood disorder
		F19930	Other psychoactive substance dependence with psychoactive substance-
		F19931	induced psychotic disorder with delusions
		F19932	

	<p>F19939 F1994 F19950 F19951 F19959 F19980 F19981 F19982 F19988 F1999</p>	<p>Other psychoactive substance dependence with psychoactive substance-induced psychotic disorder with hallucinations Other psychoactive substance dependence with substance-induced psychotic disorder, unspecified Other psychoactive substance dependence with psychoactive substance-induced anxiety disorder Other psychoactive substance dependence with psychoactive substance-induced sexual dysfunction Other psychoactive substance dependence with psychoactive substance-induced sleep disorder Other psychoactive substance dependence with other psychoactive substance induced disorder Other psychoactive substance dependence with unspecified psychoactive substance-induced disorder Other psychoactive substance use, unspecified, uncomplicated Other psychoactive substance use, unspecified with intoxication, uncomplicated Other psychoactive substance use, unspecified with intoxication with delirium Other psychoactive substance use, unspecified with intoxication with perceptual Disturbance Other psychoactive substance use, unspecified with intoxication, unspecified Other psychoactive substance use, unspecified with withdrawal, uncomplicated Other psychoactive substance use, unspecified with withdrawal delirium Other psychoactive substance use, unspecified with withdrawal with perceptual disturbance Other psychoactive substance use, unspecified with withdrawal, unspecified Other psychoactive substance use, unspecified with psychoactive substance induced mood disorder Other psychoactive substance use, unspecified with psychoactive substance induced psychotic disorder with delusions Other psychoactive substance use, unspecified with psychoactive substance induced psychotic disorder with hallucinations Other psychoactive substance use, unspecified with psychoactive disorder, unspecified Other psychoactive substance use, unspecified with anxiety disorder Other psychoactive substance use, unspecified with sexual dysfunction Other psychoactive substance use, unspecified with sleep disorder Other psychoactive substance use, unspecified with other disorder Other psychoactive substance use, unspecified with unspecified disorder</p>
Overdose		

Contributing cause

		T36-T50	Poisoning by, adverse effect of and underdosing of drugs, medicaments and biological substances
		T40	
		T40.1X1	Poisoning by, adverse effect of and underdosing of narcotics and psychodysleptics
		T40.2X1A	
		T40.0	Poisoning by heroin, accidental (unintentional)
		T40.1	Poisoning by other opioids, accidental (unintentional)
		T40.2	Poisoning by Opium
		T40.3	Poisoning by Heroin
		T40.4	Poisoning by Other Opioids
		T40.6	Poisoning by Methadone
		T50.901A	Poisoning by Other Synthetic Narcotics
		T50.902A	Poisoning by Other and Unspecified Narcotics
956.09	Poisoning by other opiates and related narcotics	T50.903A	
E85.2	Poisoning by central nervous system stimulants	T50.904A	Poisoning by unspecified drugs, medicaments and biological substances, accidental (unintentional)
970	Poisoning by sedatives and hypnotics	T50.905A	
967	Poisoning by psychotropic agents	T50.991A	Poisoning by unspecified drugs, medicaments and biological substances, accidental (unintentional), initial encounter
969	Poisoning by cocaine	T50.992A	
E938.5	Poisoning by hallucinogens (psychodysleptics)	T50.993A	Poisoning by unspecified drugs, medicaments and biological substances, intentional self-harm, initial encounter
969.6	Accidental poisoning by hallucinogens	T50.994A	Poisoning by unspecified drugs, medicaments and biological substances, assault, initial encounter
E854.1	(psychodysleptics)	T50.995A	
965.00	Poisoning by opium	T42.6X1A	Poisoning by unspecified drugs, medicaments and biological substances, undetermined, initial encounter
965.01	Poisoning by heroin	T65.91XA	
965.02	Poisoning by methadone		Adverse effect of unspecified drugs, medicaments and biological substances, initial encounter
965.09	Poisoning by other opiates and related narcotics		
E850.0	Heroin poisoning		Poisoning by other drugs, medicaments and biological substances, accidental (unintentional), initial encounter
E935.0	Heroin, adverse effects		Poisoning by other drugs, medicaments and biological substances, intentional self-harm, initial encounter
			Poisoning by other drugs, medicaments and biological substances, assault, initial encounter
			Poisoning by other drugs, medicaments and biological substances, undetermined, initial encounter
			Adverse effect of other drugs, medicaments and biological substances, initial encounter
			Poisoning by oth antieplptc and sed-hypntc drugs, acc, init
			Toxic effect of unspecified substance, accidental (unintentional), initial encounter

<i>Intentional self-poisoning</i>			
E950	Suicide and self-inflicted poisoning by solid or liquid substances	X60 X61 X62 X63 X64 X65	Intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified Intentional self-poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified Intentional self-poisoning by and exposure to other drugs acting on the autonomic nervous system Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances Intentional self-poisoning by and exposure to alcohol
<i>Assault</i>			
E962.0	Assault by drugs and medicinal substances	X85	Assault by drugs, medicaments and biological substances

Table A3 - Diagnostic Codes used to exclude patients from Study Cohort

ICD-9	Diagnosis	ICD-10	Diagnosis
347.10-347.11 327.36	Narcolepsy - symptomatic management Circadian rhythm sleep disorder, shift-work type	G47 G47.419 G47.26	Sleep disorders Narcolepsy without cataplexy Circadian rhythm sleep disorder, shift work type

Attention Deficit Hyperactivity Disorder (ADHD) Safety Edit

Goals:

- Cover ADHD medications only for diagnoses funded by the OHP and medications consistent with current best practices.
- Promote care by a psychiatrist for patients requiring therapy outside of best-practice guidelines.
- 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. FDA-approved and OHP-funded Indications.

	STIMULANTS		NON-STIMULANTS		
Indication	Methylphenidate and derivatives**	Amphetamine and derivatives	Atomoxetine	Clonidine ER	Guanfacine ER
ADHD	Age ≥6 years	Age ≥3 years	Age ≥6 years	Children age 6-17 years only	Children age 6-17 years only
Narcolepsy	Age ≥6 years	Age ≥6 years	Not approved	Not approved	Not approved

**See Table 2 for off-label methylphenidate IR dosing for age ≥ 4 years

Table 2. Standard Age and Maximum Daily Doses.

Drug Type	Generic Name	Minimum Age	Maximum Age	Maximum Daily Dose (adults or children <18 years of age unless otherwise noted)
CNS Stimulant	amphetamine/dextroamphetamine salts IR	3		40 mg
CNS Stimulant	amphetamine/dextroamphetamine salts ER	6		60 mg
CNS Stimulant	dexmethylphenidate IR	6		20 mg
CNS Stimulant	dexmethylphenidate LA	6		40 mg for adults or 30 mg if age <18 years
CNS Stimulant	dextroamphetamine IR	6		40 mg
CNS Stimulant	dextroamphetamine LA	6		60 mg
CNS Stimulant	lisdexamfetamine	6		70 mg
CNS Stimulant	methamphetamine	6	17	not established
CNS Stimulant	methylphenidate IR	4		60 mg
CNS Stimulant	methylphenidate LA	6		72 mg
CNS Stimulant	methylphenidate transdermal	6	17	30 mg
Non-Stimulant	atomoxetine	6		100 mg
Non-Stimulant	clonidine LA	6	17	0.4 mg
Non-Stimulant	guanfacine LA	6	17	4 mg for adjunctive therapy in ages 6-17 years and for monotherapy in ages 6-12 years 7 mg for monotherapy in ages 13-17 years

Abbreviations: IR = immediate-release formulation; LA = long-acting formulation (extended-release, sustained-release, etc.)

Table 3. Standard Combination Therapy for ADHD

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

Abbreviations: IR = immediate-release formulation; LA = long-acting formulation (extended-release, sustained-release, etc.)

* As recommended by the American Academy of Pediatrics 2011 Guidelines www.pediatrics.org/cgi/doi/10.1542/peds.2011-2654

**As identified by Drug Class Review: Pharmacologic Treatments for Attention Deficit Hyperactivity Disorder: Drug Effectiveness Review Project, 2011.

Approval Criteria

1. What diagnosis is being treated?	Record ICD10 code.	
2. Is the drug being used to treat an OHP-funded condition?	Yes: Go to #3	No: Pass to RPh. Deny; not funded by OHP.
3. Is the requested drug on the PDL?	Yes: Go to #5	No: Go to #4
4. Will the prescriber consider a change to a preferred agent? Message: <ul style="list-style-type: none"> Preferred drugs are evidence-based reviewed for comparative effectiveness and safety by the Oregon Pharmacy & Therapeutics (P&T) Committee. 	Yes: Inform prescriber of preferred alternatives	No: Go to #5
5. Is the request for an approved FDA diagnosis defined in Table 1?	Yes: Go to #6	No: Go to #9
6. Are the patient's age and the prescribed dose within the limits defined in Table 2?	Yes: Go to #7	No: Go to #9
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 considered a standard combination as defined in Table 3?	Yes: Approve for up to 12 months	No: Go to #9

Approval Criteria

9. Was the drug regimen developed by, or in consultation with, a psychiatrist, developmental pediatrician, psychiatric nurse practitioner, sleep specialist or neurologist?

Yes: Document name and contact information of consulting provider and approve for up to 12 months

No: Pass to RPh. Deny; medical appropriateness.

Doses exceeding defined limits or non-recommended multi-drug regimens of stimulants and/or non-stimulants are only approved when prescribed by a psychiatrist or in consultation with a mental health specialist.

May approve continuation of existing therapy once up to 90 days to allow time to consult with a mental health specialist.

P&T Review: 9/18 (JP); 5/16; 3/16 (AG); 5/14; 9/09; 12/08; 2/06; 11/05; 9/05; 5/05; 2/01; 9/00; 5/00
Implementation: 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