

# ADHD Medications Prescribed at Similar Rates During Telehealth and In-Person Visits

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## Key Findings:

- We observed no significant difference between ADHD medication prescribing rates for initial care delivered through telehealth or at an in-person office visit.

As we previously published, [attention deficit hyperactivity disorder \(ADHD\) diagnoses are increasing](#).<sup>1</sup> Additionally, we noted in a collaboration with Kaiser Family Foundation (KFF) that mental health specialties are some of the few specialties that [continued to care for a large percentage of their patient population using telehealth](#) in 2021 and 2022.<sup>2</sup> As the U.S. Drug Enforcement Administration (DEA) considers whether to continue to allow prescribing of stimulants used for the treatment of ADHD via telehealth<sup>3</sup>, we wanted to assess whether there were differences in prescribing rates for patients seen through telehealth or in-person. Stimulant medications are considered first-line treatment for ADHD but have additional prescribing requirements due to classification as controlled substances.<sup>4</sup>

We analyzed 205,065 initial visits for ADHD and 933,455 initial visits for anxiety from January 1, 2020, through March 31, 2023, to determine medication prescribing rates for telehealth and office visits. We matched patients with telehealth encounters to patients with office visit encounters by diagnosis, sex, race, ethnicity, social vulnerability index, calendar quarter of the visit, and age group. We chose anxiety visits for our comparator, as stimulant medications are not typically prescribed for anxiety diagnoses.

We found that prescribing rates for ADHD medication (including both stimulant and non-stimulant medications) within 30 days of initial diagnosis are similar for both telehealth and office visits for ADHD, hovering around 60% of visits, as shown in Figure 1. Most initial ADHD prescriptions were for stimulant medications in both telehealth (84%) and office visits (87%) for ADHD. Prescribing rates for anti-anxiety medications within 30 days of a telehealth or office visit with patient's first anxiety diagnosis followed similar trends. However, anti-anxiety medications were prescribed less often than ADHD medications, with medications prescribed for around 50% of anxiety visits.

## ADHD and Anxiety Medication Prescribing Rates by Encounter Type

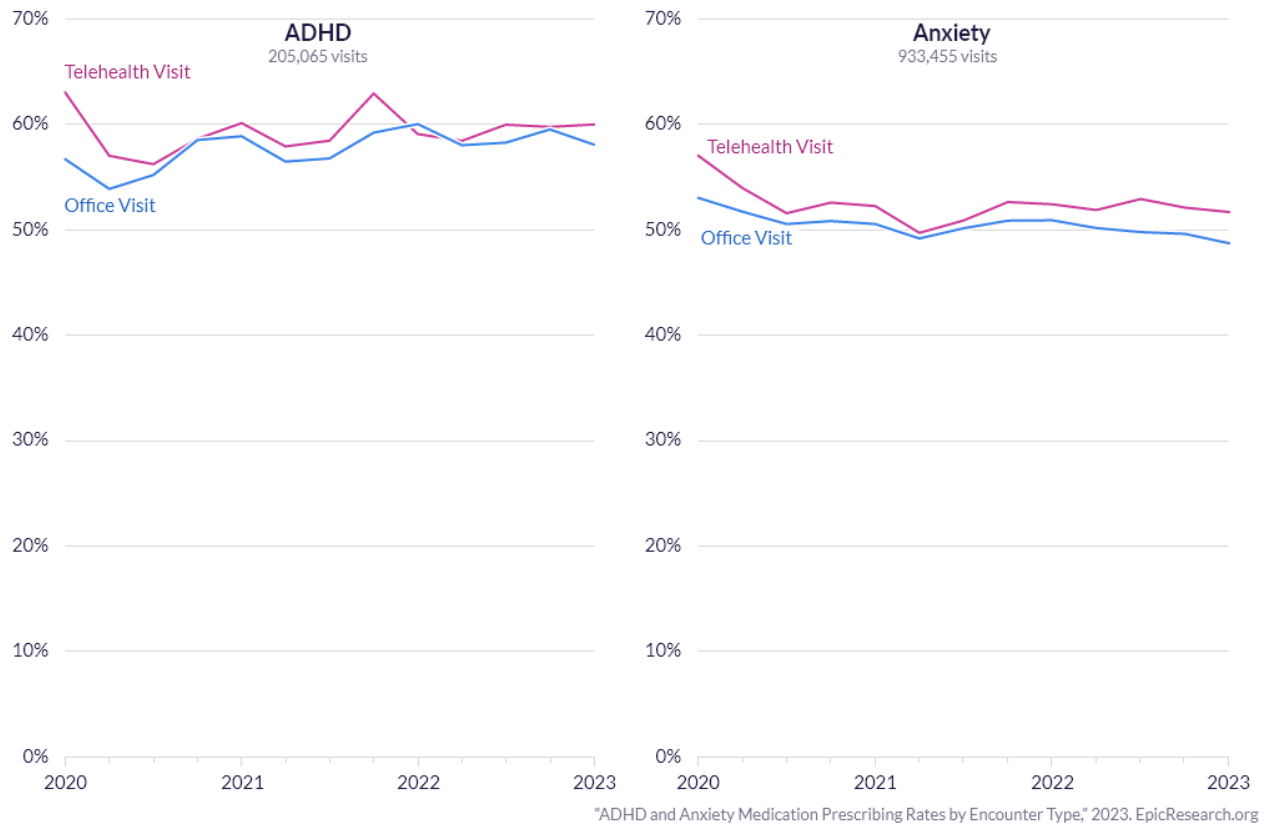


Figure 1. Percentage of initial ADHD and anxiety diagnosis encounters with a prescription for an associated medication within 30 days.

These findings suggest that, for health systems providing mental health services, providers are no more or less likely to prescribe a medication during a telehealth visit than they are during an office visit for ADHD and anxiety. Of note, this analysis does not include telehealth-only providers, which the DEA has been investigating for potential overprescribing of medications.<sup>5</sup>

*These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 190 million patients from 208 Epic organizations including 1,197 hospitals and more than 25,400 clinics, serving patients in all 50 states and Lebanon. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions.*

## References

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2. Lo J, Rae M, Amin K, et. al. Telehealth Has Played an Outsized Role Meeting Mental Health Needs During the COVID-19 Pandemic. *Kaiser Family Foundation*. March 15, 2022. <https://www.kff.org/coronavirus-covid-19/issue-brief/telehealth-has-played-an-outsized-role-meeting-mental-health-needs-during-the-covid-19-pandemic/>. Accessed on June 13, 2023.

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5. Landi, H. Cerebral Under Federal Investigation for Possible Violations of Controlled Substances Law. *Fierce Healthcare*. May 7, 2022. <https://www.fiercehealthcare.com/health-tech/cerebral-under-federal-investigation-possible-violation-controlled-substances-law>. Accessed on June 13, 2023.

## Data Definitions

Term	Definition
Study period	1/1/2020 – 2/28/2023
Study population	Patients over age 2 at the onset of their <b>ADHD</b> or <b>Anxiety</b> diagnosis with at least one prior encounter, legal sex of male or female, and a documented ZIP Code with an associated social vulnerability index score
Matching	Matched telehealth patients to office visit patients (1:4) by <b>ADHD</b> or <b>Anxiety</b> diagnosis, sex, race/ethnicity, social vulnerability index decile, calendar quarter of visit, and age group (3-12, 13-17, 18-29, 30+)
Telehealth encounter	Any encounters of types: <ul style="list-style-type: none"> <li>• Telemedicine</li> <li>• E-Visit</li> <li>• Telephone with a CPT billing code</li> <li>• Telephone Visit with a CPT billing code</li> <li>• Office Visit with a CPT billing code of 99441, 99442, or 99443</li> <li>• Appointment with a CPT billing code of 99441, 99442, or 99443</li> </ul> Well Child with a CPT billing code of 99441, 99442, or 99443
In-person visit	Any encounters of type Office Visit, Appointment, or Well Child without a CPT billing code of 99441, 99442, or 99443
ADHD diagnosis	A diagnosis with ICD-10-CM code F90*
Anxiety diagnosis	A diagnosis with SNOMED-CT code 197480006
ADHD medication	Stimulant medications: <ul style="list-style-type: none"> <li>• methylphenidate</li> <li>• methylphenidate HCl</li> <li>• dexamethylphenidate HCl</li> <li>• dextroamphetamine sulfate</li> <li>• dextroamphetamine/amphetamine</li> <li>• dextroamphetamine</li> <li>• serdexmethylphen/dexamethylphen</li> <li>• lisdexamfetamine dimesylate</li> <li>• pemoline</li> <li>• amphetamine</li> <li>• amphetamine sulfate</li> </ul> Non-stimulant medications: <ul style="list-style-type: none"> <li>• atomoxetine HCl</li> <li>• clonidine HCl</li> <li>• clonidine</li> <li>• guanfacine HCl</li> <li>• viloxazine HCl</li> </ul>
Anxiety medication	Any medication with a pharmaceutical class of: <ul style="list-style-type: none"> <li>• Selective serotonin reuptake inhibitor (SSRIs)</li> </ul>

	<ul style="list-style-type: none"> <li>• Serotonin-norepinephrine reuptake-inhib (SNRIs)</li> <li>• Tricyclic antidepressant-benzodiazepine combinations</li> <li>• Tricyclic antidepressant-phenothiazine combinations</li> <li>• Tricyclic antidepressants,rel.non-sel.reupt-inhibitors</li> <li>• Anti-anxiety benzodiazepines</li> <li>• Anti-anxiety drugs</li> </ul>
<b>Onset medication received</b>	Patients with <b>ADHD</b> or <b>Anxiety</b> who received or reported having received a prescription to address the condition within the 30 days preceding or following their onset diagnosis date

**Table 1: ADHD Prescribing Rates by Encounter Type**

Quarter Start Date	Matched Telehealth Encounters	Telehealth Medications Prescribed	Matched Office Encounters	Office Visit Medications Prescribed	Telehealth Only (95% Wald CI)	Office Only (95% Wald CI)
1/1/2020	746	470	2,984	1,691	63.0% (59.5 – 66.5)	56.7% (54.9 – 58.4)
4/1/2020	2,562	1,460	10,248	5,519	57.0% (55.1 – 58.9)	53.9% (52.9 – 54.8)
7/1/2020	3,810	2,141	15,240	8,409	56.2% (54.6 – 57.8)	55.2% (54.4 – 56.0)
10/1/2020	4,362	2,556	17,448	10,206	58.6% (57.1 – 60.1)	58.5% (57.8 – 59.2)
1/1/2021	4,990	2,999	19,960	11,746	60.1% (58.7 – 61.5)	58.8% (58.2 – 59.5)
4/1/2021	3,652	2,114	14,608	8,245	57.9% (56.3 – 59.5)	56.4% (55.6 – 57.2)
7/1/2021	3,003	1,755	12,012	6,816	58.4% (56.7 – 60.2)	56.7% (55.9 – 57.6)
10/1/2021	3,008	1,892	12,032	7,121	62.9% (61.2 – 64.6)	59.2% (58.3 – 60.1)
1/1/2022	3,789	2,238	15,156	9,094	59.1% (57.5 – 60.6)	60.0% (59.2 – 60.8)
4/1/2022	3,051	1,782	12,204	7,079	58.4% (56.7 – 60.2)	58.0% (57.1 – 58.9)
7/1/2022	2,872	1,722	11,488	6,692	60.0% (58.2 – 61.8)	58.3% (57.4 – 59.2)
10/1/2022	3,072	1,835	12,288	7,310	59.7% (58.0 – 61.5)	59.5% (58.6 – 60.4)
1/1/2023	2,096	1,257	8,384	4,868	60.0% (57.9 – 62.1)	58.1% (57.0 – 59.1)
<b>Total</b>	<b>41,013</b>	<b>24,221</b>	<b>164,052</b>	<b>94,796</b>	<b>59.1% (58.6 – 59.5)</b>	<b>57.8% (57.5 – 58.0)</b>

**Table 2: Anxiety Prescribing Rates by Encounter Type**

Quarter Start Date	Matched Telehealth Encounters	Telehealth Medications Prescribed	Matched Office Encounters	Office Visit Medications Prescribed	Telehealth Only (95% Wald CI)	Office Only (95% Wald CI)
1/1/2020	5,638	3,214	22,552	11,955	57.0% (55.7 – 58.3)	53.0% (52.4 – 53.7)
4/1/2020	22,040	11,891	88,160	45,588	54.0% (53.3 – 54.6)	51.7% (51.4 – 52.0)
7/1/2020	23,030	11,872	92,120	46,552	51.6% (50.9 – 52.2)	50.5% (50.2 – 50.9)
10/1/2020	23,348	12,273	93,392	47,467	52.6% (51.9 – 53.2)	50.8% (50.5 – 51.1)
1/1/2021	24,255	12,671	97,020	49,027	52.2% (51.6 – 52.9)	50.5% (50.2 – 50.8)
4/1/2021	14,401	7,158	57,604	28,329	49.7% (48.9 – 50.5)	49.2% (48.8 – 49.6)
7/1/2021	12,289	6,252	49,156	24,645	50.9% (50.0 – 51.8)	50.1% (49.7 – 50.6)
10/1/2021	11,398	5,997	45,592	23,186	52.6% (51.7 – 53.5)	50.9% (50.4 – 51.3)
1/1/2022	14,422	7,558	57,688	29,361	52.4% (51.6 – 53.2)	50.9% (50.5 – 51.3)

<b>4/1/2022</b>	10,028	5,200	40,112	20,115	51.9% (50.9 - 52.8)	50.1% (49.7 - 50.6)
<b>7/1/2022</b>	9,947	5,263	39,788	19,806	52.9% (51.9 - 53.9)	49.8% (49.3 - 50.3)
<b>10/1/2022</b>	9,205	4,795	36,820	18,268	52.1% (51.1 - 53.1)	49.6% (49.1 - 50.1)
<b>1/1/2023</b>	6,690	3,457	26,760	13,038	51.7% (50.5 - 52.9)	48.7% (48.1 - 49.3)
<b>Total</b>	186,691	97,601	746,764	377,337	52.3% (52.1 - 52.5)	50.5% (50.4 - 50.6)