About One in Five Children Remain on Their Initial Long-Acting ADHD Medication After Two Years

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Key Findings:

- About 58% of children stayed on their first long-acting stimulant for ADHD for at least six months and 37% for at least one year. At two years, only 21% of children remained on the long-acting stimulant they started on.
- The rate of children remaining on their first long-acting stimulant at two years was similar across the four most commonly prescribed meds —Focalin XR, Concerta, Vyvanse, and Adderall XR— ranging from 21–22%.
- Children who started their first long-acting ADHD medication at later ages were less likely to remain on the same medication after two years, with about 24% of 7-year-olds remaining on their initial medication after two years compared to about 12% of 17-year-olds.

Attention-deficit/hyperactivity disorder (ADHD) is common: about one in nine U.S. children has received the diagnosis.[1] For children aged 6 and older, guidelines recommend FDA-approved medication together with behavioral therapy.[1,2] However, many children do not stay on ADHD medication long-term: one study found about two-thirds of children and fewer than 50% of adolescents remained on any ADHD medication one year after starting.[3] Choosing the right stimulant often involves trial and error as even medications with the same active ingredient can deliver that medication differently, resulting in differences in symptom management throughout the day. One small study suggests that the initial medication prescribed might be linked to how long a patient remains on ADHD treatment.[4] However, little is known about how which initial long-acting stimulant is prescribed might influence how long a child stays on that ADHD treatment and whether their age at initial prescribing makes a difference.

We studied 682,112 U.S. children aged 6–17 with an ADHD diagnosis who started a first long-acting stimulant between January 2018 and December 2025. We excluded children with narcolepsy or binge-eating disorder (conditions that some of these stimulants are also used to treat) and those who switched to a different long-acting stimulant within the first seven days. We checked whether children remained on their starting medication at six months, one year, and two years. We considered a child remaining on their medication if an order or pharmacy dispense was recorded at least every four months without discontinuation.

Children were much less likely to stay on their initial long-acting ADHD medication as time passed: about 58% did so at six months, 37% at one year, and 21% at two years. Among the eight most commonly used products, two-year rates were highest and very similar for Focalin XR, Concerta, Vyvanse, and Adderall XR (about 21%–22%). Rates were lower for the less commonly prescribed Metadate CD, Ritalin LA, QuilliChew ER, and Quillivant XR. Generic equivalents for each medication are considered prescriptions for the brand name medication in this analysis.

Persistence on First Long-Acting Stimulant by Product Among Children with ADHD

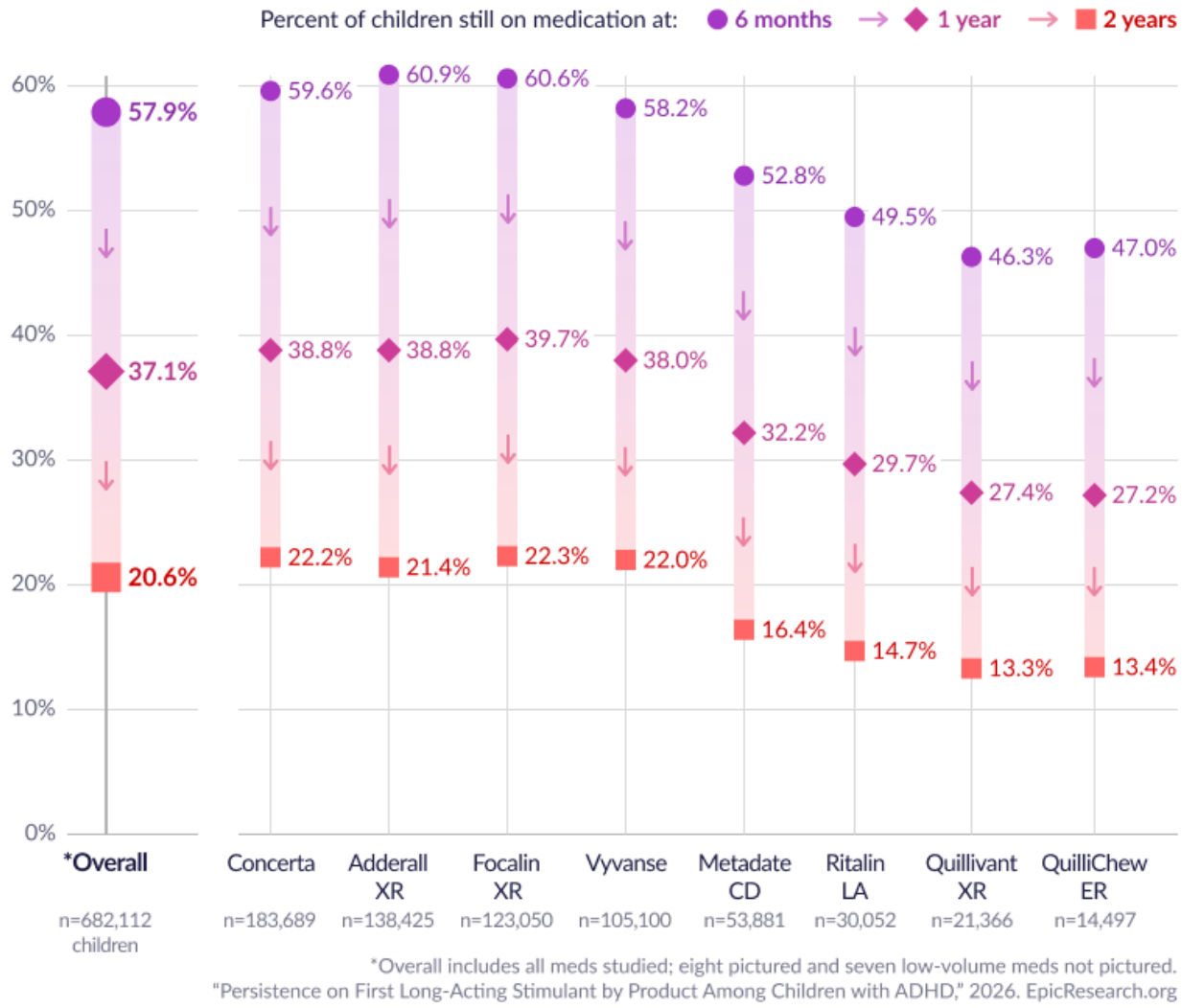


Figure 1. Percentage of children aged 6–17 with ADHD who stayed on their starting long-acting stimulant at six months, one year, and two years, by product.

Older children were generally less likely to stay on their initial medication, especially at the two–year mark. The pattern was not a steady decline from age 6. Six-month persistence peaked at age 11 (60.3%), one-year persistence at age 8 (39.8%), and two-year persistence at age 7 (23.8%). After these peaks, persistence declined with each additional year of age with about 12% of 17-year-olds remaining on their initial medication for two years. Six-month rates varied less across ages, from 54.5% to 60.3%.

Persistence on First Long-Acting Stimulant by Age Among Children with ADHD

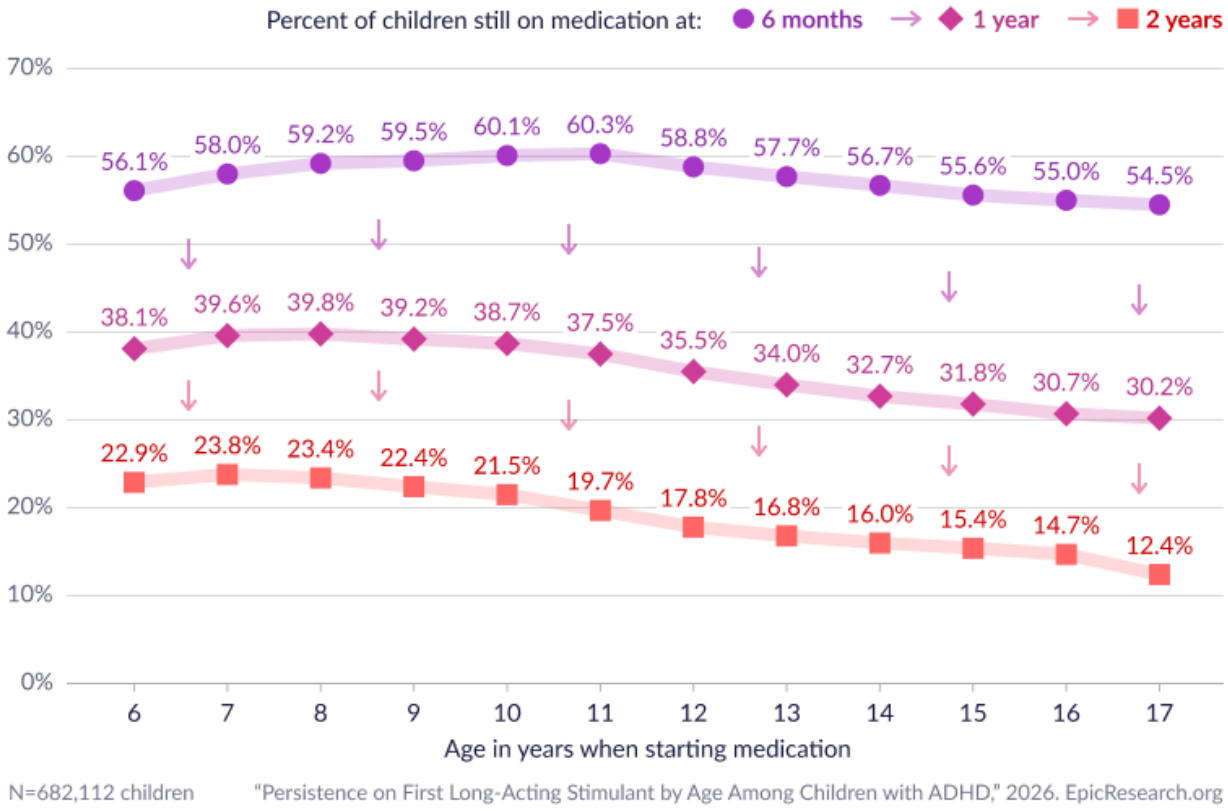


Figure 2. Percentage of children with ADHD who stayed on their starting long-acting stimulant at six months, one year, and two years, by age when treatment started.

This analysis does not evaluate why a patient discontinued their initial ADHD medication. This study does not account for other mechanisms of ADHD treatment or whether a child took the medication as prescribed. Insurance coverage and prescribing preferences can influence which product a child starts and whether they switch or stop taking a medication. Additionally, medication supply shortages first announced by the FDA in October 2022 could influence whether a prescription was changed or discontinued.[5,6] Some providers might recommend planned breaks from stimulant use, such as during summer holidays, but we attempted to minimize the potential impact of this by only counting a prescription as discontinued if more than four months passed between refills or orders.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 300 million patient records from 2,200 hospitals and more than 50,000 clinics from all 50 U.S. states, Canada, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientist. The two teams came to similar conclusions. Graphics by Brian Olson.

References

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Data Definitions

Term	Definition
Study period	Index orders 1/1/2018 – 12/31/2025, follow-up through 7/31/2026
Study population: inclusion	Patients who: • Were aged 6–17 at **index date** (first order) • Had a first order of a **qualifying long-acting stimulant** • Had a diagnosis with ICD-10-CM code F90* on or before index • Had two outpatient face-to-face encounters in the three years before index • Were new users (no prior order or dispense of any qualifying long-acting stimulant before index) • Had a most recent residence in the U.S.
Study population: exclusion	Patients who: • Had a diagnosis with ICD-10-CM code G47.4* (narcolepsy) on or before index • Had a diagnosis with ICD-10-CM code F50.81* (binge-eating disorder) on or before index • Switched to a different **qualifying long-acting stimulant** within the first seven days after index
Index date	Date of first order of a **qualifying long-acting stimulant**
Exposures	Qualifying long-acting stimulant products, grouped by molecule: Methylphenidate ER (Concerta, Ritalin LA, Metadate CD, Aptensio XR, Quillivant XR, QuilliChew ER, Cotempla XR-ODT, Jornay PM); Dexmethylphenidate ER (Focalin XR); Mixed amphetamine salts ER (Adderall XR, Mydayis); Amphetamine ER (Adzenys XR-ODT, Dyanavel XR); Dextroamphetamine ER (Dexedrine Spansule); Lisdexamfetamine (Vyvanse/Vyvanse Chewable). Products identified by simple generic name, form, and route, with strength used to separate products sharing form and route. Brand names are used as labels because generic names alone do not distinguish the formulation.
Persistence	Measured on the starting brand. The episode is maintained if an order or dispense of the starting brand occurs at least once every four months without qualifying as a **discontinuation**.
Discontinuation	Two mutually exclusive types: Full drop (no order or dispense of the starting brand for 4 months, with no other **qualifying long-acting stimulant**

	started); Drop with switch (the starting brand is dropped and a different qualifying long-acting stimulant is started, or a second qualifying agent is added to the initial one)
Denominator	For each follow-up point (6, 12, and 24 months), patients who met the study population criteria and whose **index date** allowed complete potential follow-up to that point by 7/31/2026 (index on or before 1/31/2026, 7/31/2025, and 7/31/2024, respectively) and did not become censored before that follow-up period.
Censoring	Earliest of: • End of the study period (7/31/2026) • Recorded death • Loss to follow-up at the last face-to-face visit
International considerations	U.S. patients only
Model specifications	Crude persistence rates at 6, 12, and 24 months, each among patients with complete potential follow-up to that landmark
Limitations	• Planned breaks over school holidays are common in pediatric ADHD care; the 4-month gap tolerates most summer breaks but some may still register as discontinuation. • Confounding by indication/channeling: with brand-level arms, brand choice is strongly influenced by formulary, insurance, and prior response, so persistence differences between brands may partly reflect channeling rather than the drug. • Brand identifiability: Cosmos stores a 6-digit GPI, so brand separation relies on simple generic name, form, route, and strength; methylphenidate ER capsules (Aptensio XR, Ritalin LA, Metadate CD) might not be cleanly distinguishable. • Unequal arm sizes limit power for smaller brands, particularly at the 24-month landmark; newer-but-eligible brands (e.g., Jornay PM) have thin 24-month denominators. • Relexxii was excluded because its commercial launch is too recent to support 24 months of follow-up within the study period. • Indexing on the first order includes patients with primary non-adherence (ordered but never filled); these are handled as a defined category. • A recorded order or fill indicates the medication was prescribed or dispensed, not that it was taken. • The national stimulant shortage that began in 2022 forced medication changes unrelated to tolerability or preference.

Table 1. Baseline Characteristics of the Study Population

Characteristic	Category	N	%
Total	All	682,112	100.0
Sex	Female	244,940	35.9
	Male	437,015	64.1
	Unknown	126	0.0
Age band	6–12	523,352	76.7
	13–17	158,760	23.3
Insurance	Other (incl. commercial)	493,533	72.4
	Medicaid	179,798	26.4
	Self-pay	5,596	0.8

	Medicare	105	0.0
	Unknown	3,080	0.5
SVI quintile	Q1 [0.0,0.2)	111,215	16.3
	Q2 [0.2,0.4)	133,107	19.5
	Q3 [0.4,0.6)	128,592	18.9
	Q4 [0.6,0.8)	146,676	21.5
	Q5 [0.8,1.0]	160,615	23.5
	Unknown	1,907	0.3
Index year	2018	56,554	8.3
	2019	63,156	9.3
	2020	56,851	8.3
	2021	71,919	10.5
	2022	89,188	13.1
	2023	100,473	14.7
	2024	114,370	16.8
	2025	129,601	19.0

Table 2. Persistence on First Long-Acting Stimulant by Product Among Children with ADHD

Product	N (patients)	6-month %	12-month %	24-month %
Overall	682,112	57.9	37.1	20.6
Focalin XR	123,050	60.6	39.7	22.3
Concerta	183,689	59.6	38.8	22.2
Vyvanse	105,100	58.2	38.0	22.0
Adderall XR	138,425	60.9	38.8	21.4
Jornay PM	2,926	49.1	32.8	19.4
Metadate CD	53,881	52.8	32.2	16.4
Cotempla XR-ODT	2,695	53.2	33.2	16.2
Ritalin LA	30,052	49.5	29.7	14.7
Adzenys XR-ODT	1,271	51.4	30.8	13.7
Dyanavel XR	2,192	46.1	27.6	13.6
QuilliChew ER	14,497	47.0	27.2	13.4
Quillivant XR	21,366	46.3	27.4	13.3
Dexedrine Spansule	813	47.2	29.0	13.0
Mydayis	188	34.9	22.9	11.3
Aptensio XR	1,967	37.7	18.6	7.0

Table 3. Persistence on First Long-Acting Stimulant by Age Among Children with ADHD

Age (years)	N (patients)	6-month %	12-month %	24-month %
6	111,912	56.1	38.1	22.9
7	103,157	58.0	39.6	23.8
8	90,944	59.2	39.8	23.4
9	71,760	59.5	39.2	22.4
10	55,839	60.1	38.7	21.5
11	47,138	60.3	37.5	19.7
12	42,602	58.8	35.5	17.8
13	37,126	57.7	34.0	16.8

14	33,248	56.7	32.7	16.0
15	31,538	55.6	31.8	15.4
16	29,852	55.0	30.7	14.7
17	26,996	54.5	30.2	12.4