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Medication-Assisted Treatment for Adolescents in Specialty Treatment for Opioid Use Disorder

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A B S T R A C T

Purpose: The American Academy of Pediatrics recently recommended that pediatricians consider medication-assisted treatment (MAT) for adolescents with severe opioid use disorders. Little is known about adolescents' current use of MAT.
Methods: We use data on episodes of specialty treatment for heroin or opioid use (n = 139,092) from a database of publicly funded treatment programs in the U.S. We compare the proportions of adolescents and adults who received MAT, first using unadjusted comparison of proportions, then using logistic regression to adjust for potential confounders.
Results: Only 2.4% (95% confidence interval [CI], 1.4%–3.7%) of adolescents in treatment for heroin received MAT, as compared to 26.3% (95% CI, 26.0%–26.6%) of adults. Only .4% (95% CI, .2%–.7%) of adolescents in treatment for prescription opioids received MAT, as compared to 12.0% (95% CI, 11.7%–12.2%) of adults. Regression-adjusted results were qualitatively similar.
Conclusions: Regulatory changes and expansions of Medicaid/CHIP coverage for MAT may be needed to improve MAT access.

IMPLICATIONS AND CONTRIBUTION

The American Academy of Pediatrics recently recommended that pediatricians consider medication-assisted treatment (MAT) for adolescents with severe opioid use disorders. This study shows that adolescents in specialty substance treatment for opioid use disorders rarely receive MAT. Regulatory changes and expansions of Medicaid/CHIP coverage for MAT could improve MAT access.

Prescribing rates for opioids among adolescents and young adults nearly doubled from 1994 to 2009 [1]. Between 1992 and 2012, the prevalence of nonmedical prescription opioid misuse and opioid use disorders among adolescents both doubled [2] (although prescription opioid misuse is beginning to decline again [3]). Only about 1 out of every 12 adolescents in need of treatment for opioid use received any care in 2014 [4].

The American Academy of Pediatrics recently recommended that pediatricians consider offering medication-assisted treatment (MAT) to adolescents with severe opioid use disorders (OUD) or discuss referrals to other providers for this treatment [2]. MAT reduces adolescents' opioid misuse and injection drug use [5]. Increased availability of MAT for adults has also been associated with substantial population-level reductions in overdoses [6]. MAT by a pediatrician without referral would consist primarily of buprenorphine treatment (or long-acting injectable naltrexone, although there is limited evidence for the latter), but few primary care pediatricians have buprenorphine training. This likely leaves the provision of MAT to specialty substance use treatment centers like methadone clinics. However, methadone access is severely restricted for adolescents age 16 and 17 years. Federal regulations require methadone clinics to receive a special waiver to treat adolescents. Furthermore, adolescents must demonstrate two "failed" attempts without pharmacotherapy to

Conflicts of Interest: The authors have no conflicts of interest to disclose.

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Table 1
Selected characteristics of adolescents and adults in treatment for heroin and opioid use by age, 2013

	Heroin		Other opioids	
	Adults (N = 66,074)	Adolescents (N = 761)	Adults (N = 69,932)	Adolescents (N = 2,325)
	N (%)	N (%)	N (%)	N (%)
No MAT	48,694 (73.7%)	743 (97.6%)	61,569 (88%)	2,316 (99.6%)
MAT	17,380 (26.3%)	18 (2.4%)	8,363 (12%)	9 (.4%)
Sex				
Male	41,881 (63.4%)	386 (50.7%)	36,603 (52.3%)	1,589 (68.3%)
Female	24,193 (36.6%)	375 (49.3%)	33,329 (47.7%)	736 (31.7%)
Race/ethnicity				
White	46,653 (70.6%)	558 (73.3%)	58,764 (84%)	1,627 (70%)
Black	7,495 (11.3%)	29 (3.8%)	3,900 (5.6%)	232 (10%)
Hispanic	9,369 (14.2%)	128 (16.8%)	4,455 (6.4%)	314 (13.5%)
Am Indian/Alaska Native	707 (1.1%)	16 (2.1%)	1,288 (1.8%)	50 (2.2%)
Asian/Hawaiian/Pac Islander	507 (.8%)	5 (.7%)	456 (.7%)	29 (1.2%)
Multiracial	530 (.8%)	9 (1.2%)	546 (.8%)	42 (1.8%)
Other	813 (1.2%)	16 (2.1%)	523 (.7%)	31 (1.3%)
Substances reported at admission				
1	21,749 (32.9%)	87 (11.4%)	24,208 (34.6%)	142 (6.1%)
2	24,564 (37.2%)	300 (39.4%)	22,848 (32.7%)	675 (29%)
3	19,761 (29.9%)	374 (49.1%)	22,876 (32.7%)	1,508 (64.9%)
Referral source				
Individual	39,107 (59.2%)	271 (35.6%)	34,797 (49.8%)	601 (25.8%)
Substance use provider	4,701 (7.1%)	65 (8.5%)	3,938 (5.6%)	109 (4.7%)
Other health provider	3,918 (5.9%)	68 (8.9%)	7,479 (10.7%)	236 (10.2%)
School/work	136 (.2%)	25 (3.3%)	441 (.6%)	170 (7.3%)
Other community	4,872 (7.4%)	100 (13.1%)	7,376 (10.5%)	261 (11.2%)
Criminal justice	13,340 (20.2%)	232 (30.5%)	15,901 (22.7%)	948 (40.8%)
Housing status				
Not homeless	56,520 (85.5%)	754 (99.1%)	64,594 (92.4%)	2,296 (98.8%)
Homeless	9,554 (14.5%)	7 (.9%)	5,338 (7.6%)	29 (1.2%)

Note: Chi-square tests indicate that all between age-group differences are statistically significantly different at the $p < .001$ level.
MAT = medication-assisted treatment.

be eligible for methadone treatment [7]. Little information is available regarding the extent of MAT use among adolescents treated for OUD.

Methods

We used data from the 2013 Treatment Episode Data Set (TEDS), a federal database of state administrative records on substance use treatment episodes that occur in publicly funded facilities (Table 1) [8]. TEDS has been estimated to cover more than 67% of substance use treatment admissions (public or private) in the U.S. [9].

Persons treated primarily for "heroin," "nonprescription use of methadone," or "other opiates or synthetics" were included in our analysis. We restricted our sample to first treatment episodes. Pennsylvania, Georgia, West Virginia, Wisconsin, and Wyoming did not provide necessary data and were excluded. An additional 5.5% of remaining records were excluded because they were missing information on covariates included in the analysis. The final sample included 139,092 first treatment episodes. Adolescents comprised 2.2% of the sample of episodes, including 1.1% of episodes of treatment for heroin use and 3.2% of episodes of treatment for all other opioids.

Receipt of MAT was defined by whether methadone or buprenorphine (but not naltrexone) was part of a client's treatment plan. We calculated the proportion of adolescent episodes (ages 15–17 years) and adult episodes (≥18) of opioid treatment that included MAT, stratified by whether the individual in treatment used heroin versus other opioids.

Adolescents and adults in drug treatment may differ on other characteristics that influence the receipt of MAT. We used logistic regression to model the association of MAT with age, adjusting for sex, race/ethnicity, referral source, homelessness status, and number of substances reported at admission and stratified by whether the client used heroin versus only other prescription opioids. The regression model was used to estimate the odds ratio of MAT comparing adolescents to adults and to estimate adjusted rates of MAT use where all covariates were set to the population average.

This research is exempt from the human subject's ethical approval research requirements because it involves secondary analysis of existing data and subjects cannot be identified.

Results

In total, 761 adolescents had a first treatment admission for heroin use and 2,325 for other opioid use. Only 2.4% (95% confidence interval [CI], 1.4%–3.7%) of adolescent treatment admissions included MAT, as compared to 26.3% (95% CI, 26.0%–26.6%) of adult admissions. Only .4% (95% CI, .2%–.7%) of adolescent treatment admissions for other opioids included MAT, as compared to 12.0% (95% CI, 11.7%–12.2%) of adult admissions.

Adolescents were less likely than adults to be homeless, were more likely to report using more substances at admission, and were more likely to be referred by the criminal justice system. However, adjusting for these variables still indicated substantial differences in MAT use of heroin users, OR = .09 (95% CI, .05–.14) and other opioid users, OR = .05 (95% CI,