

# Patterns of Abuse of Prescription Stimulant Products from the National Addictions Vigilance Intervention Program (NAVIPPRO®): 2010-2018

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## OBJECTIVES

- Misuse and abuse of prescription stimulant products, including methylphenidate (MPH) products, is an ongoing concern in the treatment of attention-deficit hyperactivity disorder (ADHD)<sup>1-3</sup>
- The objective of this study was to characterize patterns of nonmedical use (NMU) of prescription stimulants (including prevalence, routes of administration, non-stimulant abuse), with a focus on MPH products, among adolescents and adults being evaluated for substance abuse treatment

## METHODS

- This was a cross-sectional study using NAVIPPRO®, a public health surveillance system for monitoring patterns and trends in substance abuse, from 2010-2018.
- Prevalence of past 30-day NMU of prescription stimulants (including MPH and amphetamine products), routes of administration, and abuse of non-stimulant drugs was characterized in separate samples of adults who completed an Addiction Severity Index – Multimedia Version (ASI-MV®) assessment and adolescents who completed a Comprehensive Health Assessment for Teens (CHAT®) assessment, during the period 01 January 2010 through 30 September 2018
- The ASI-MV assessment, which includes questions about nonmedical use of prescription medications, gathers self-reported data from adults ages 18 and older assessed for substance nonmedical use problems or treatment planning within a network of public and private facilities throughout the United States
- CHAT is a behavioral health assessment tool targeted for adolescents between the ages of 13 and 18 years and includes questions about nonmedical use of prescription medications collected upon intake for substance abuse treatment
- NMU of a prescription medications, including stimulants, was captured via self-report during computer-administered interviews for both the ASI-MV and CHAT
- Nonmedical use (NMU) was defined as use of a prescription stimulant without a prescription or use not as prescribed in the past 30 days
- Immediate-release (IR) and extended-release (ER) prescription stimulants FDA-approved prior to 2017 were included in this analysis
- Data are expressed as:
  - past 30-day NMU per 100 assessments, and
  - past 30-day NMU per 100,000 prescriptions dispensed

## RESULTS

### Patient Characteristics

- During the total study period, 22,553 CHAT and 568,602 ASI-MV assessments were completed
- Among the total CHAT population, the majority of respondents were male (65.5%), between the ages of 15 and 18 (78.0%), Caucasian (64.2%), lived with biological or adoptive parent(s) (77.4%), and were currently enrolled in school (83.9%)
- Approximately 33% of respondents indicated currently taking a medication for an emotional, behavioral, or learning problem
- Among the total ASI-MV population, 36.4% were between the ages of 25-34 years and greater than half of respondents were male (62.9%), Caucasian (61.7%), and never married (56.4%). Thirty-seven percent of respondents were found to have moderate to considerable drug problems and 11.0% had an extreme drug problem

### Prevalence of Nonmedical Use

- Past 30-day abuse of any prescription stimulant product was recorded in 923 (4.1%) adolescents and 9,983 (1.8%) adults (Table 1)
- Among adolescents and adults reporting past 30-day NMU of any prescription stimulant, NMU of MPH products was reported in 34% and 41%, respectively
- NMU of amphetamine products was reported approximately 2-fold more frequently than NMU of MPH products

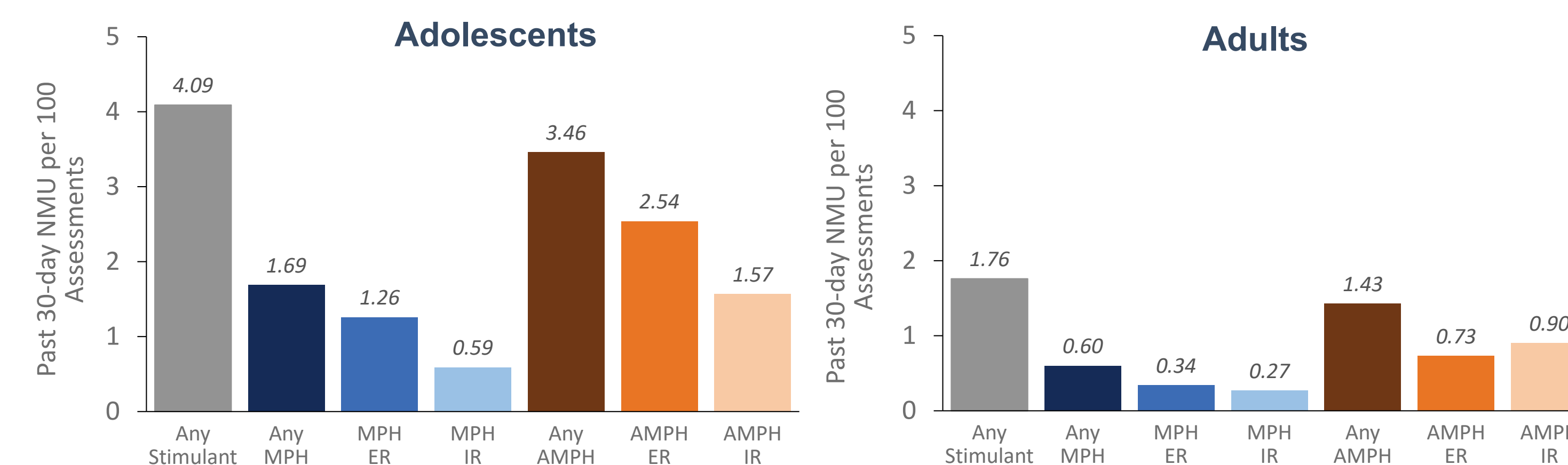
**Table 1. Stimulant NMU Cases in Adults (ASI-MV Network) and Adolescents (CHAT Network) (2010-2018)**

Stimulant Class, n (%)	Total NMU Cases	
	Adolescents (n=22,553)	Adults (n=568,602)
<b>Any Stimulant</b>	923 (4.1%)	9,983 (1.8%)
<b>Any Methylphenidate</b>	382 (1.7%)	3,428 (0.60%)
Methylphenidate ER	285 (1.3%)	1,946 (0.34%)
Methylphenidate IR	134 (0.60%)	1,551 (0.27%)
<b>Any Amphetamine</b>	781 (3.5%)	8,123 (1.4%)
Amphetamine ER	572 (2.5%)	4,168 (0.73%)
Amphetamine IR	353 (1.6%)	5,102 (0.90%)

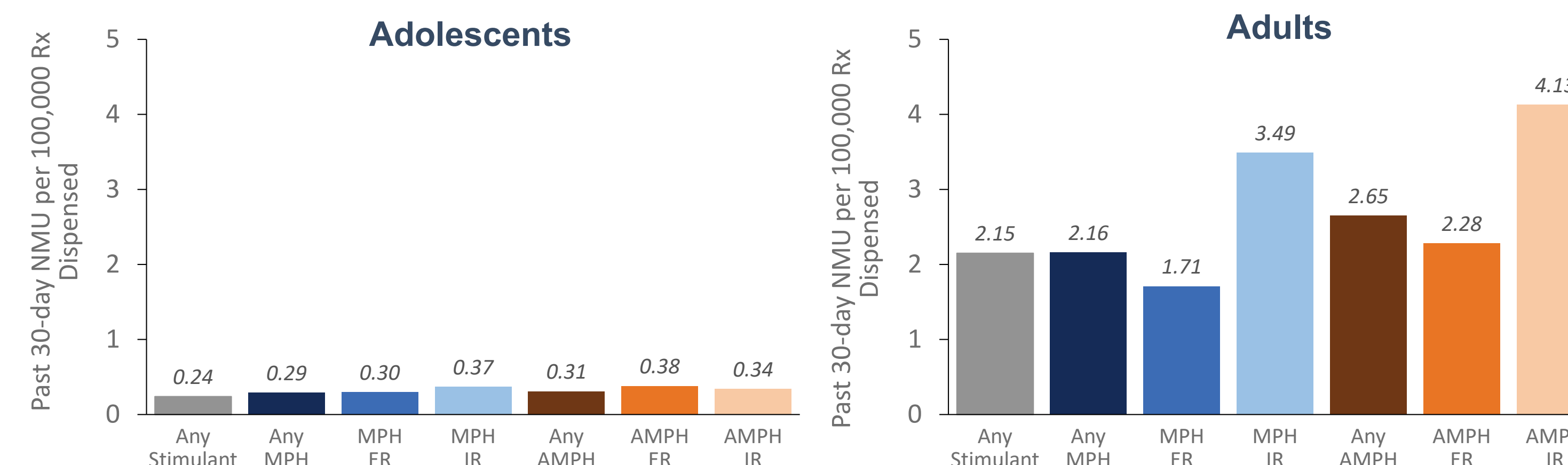
*Note:* Individuals could have reported NMU of more than one prescription stimulant, and thus sub-categories can sum to more than the higher-level heading

- Figure 1** and **Figure 2** show prevalence of NMU of prescription stimulants, expressed either as cases per 100 assessments or cases per 100,000 prescriptions dispensed
- When expressed as cases per 100 assessments (Figure 1), NMU of ER MPH products was greater than IR MPH products in both adolescents (1.26 vs. 0.59) and adults (0.34 vs. 0.27)
- When expressed as cases per 100,000 prescriptions dispensed (Figure 2), NMU of IR MPH products was greater than ER MPH products in both adolescents (0.37 vs. 0.30) and adults (3.49 vs. 1.71)

**Figure 1. Prevalence of NMU of Prescription Stimulants Among Adolescents (left panel) and Adults (right panel) (2010-2018), Expressed as Cases per 100 Assessments**



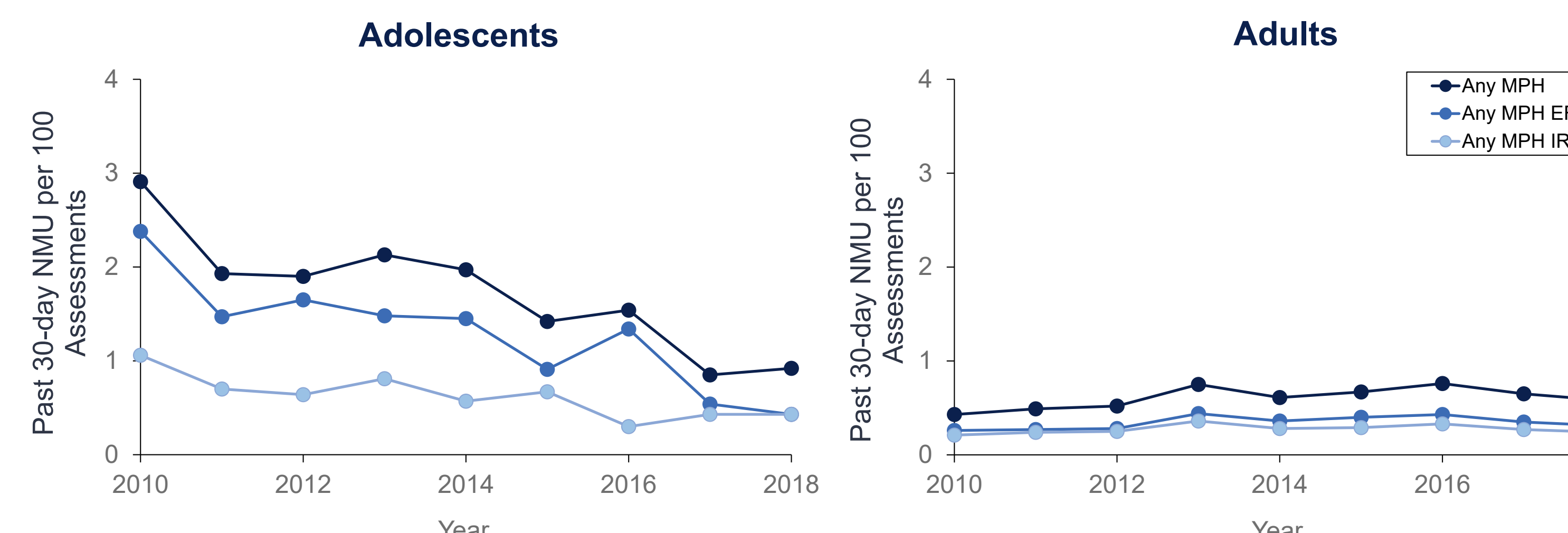
**Figure 2. Prevalence of NMU of Prescription Stimulants Among Adolescents (left panel) and Adults (right panel) (2010-2018), Expressed as Cases per 100,000 Prescriptions**



### Yearly Trends in Nonmedical Use of MPH Products

- Within the MPH class, year-over-year trends from 2010 to 2018 indicated a decrease in past 30-day NMU in adolescents and a slight increase in adults (Figure 3)

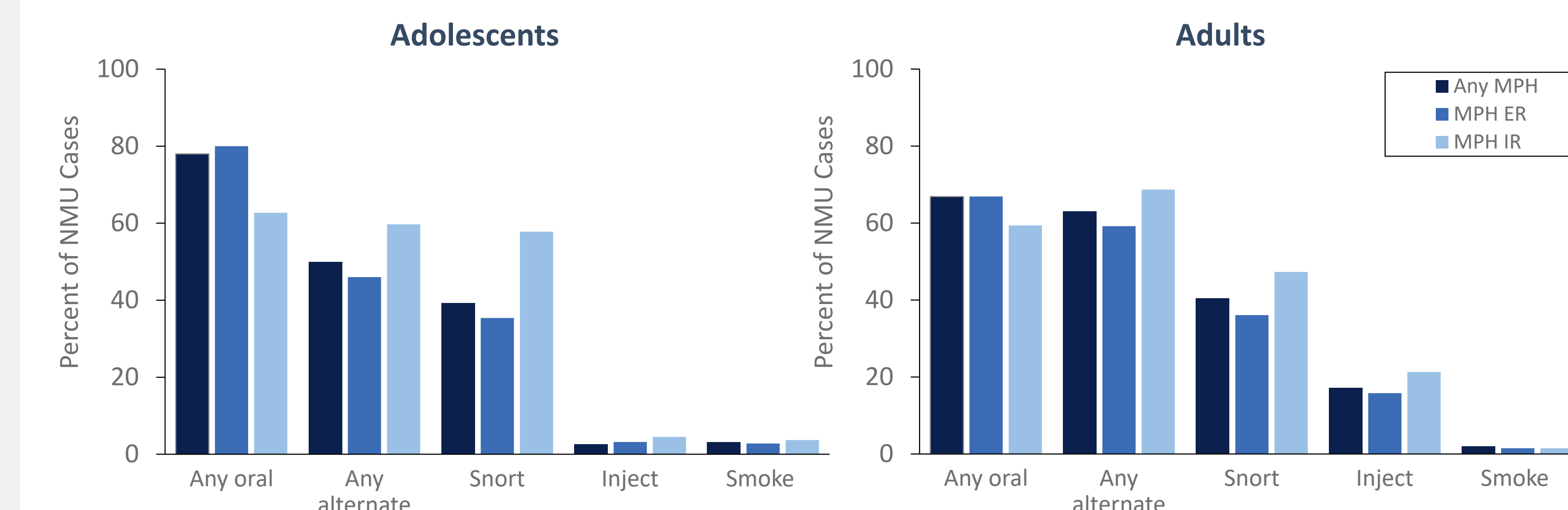
**Figure 3. Year-over-Year Prevalence of NMU of MPH Products Among Adolescents (left panel) and Adults (right panel) (2010-2018), Expressed as Cases per 100 Assessments**



### Route of Administration

- While the oral route of administration was most common for NMU of prescription MPH products, adolescents and adults also reported administration by snorting (39.3% and 40.5%, respectively) and injecting (2.6% and 17.2%, respectively) (Figures 4 and 5)

**Figure 4. Route of Administration for NMU of Prescription MPH Products Among Adolescents (left panel) and Adults (right Panel)**



### Nonmedical Use of Other Drugs

- A significant proportion of adolescents and adults indicating past 30-day NMU of MPH products also reported lifetime heroin use (24.1% and 51.5%, respectively) and history of injection of any drug (85.6% and 49.7%, respectively)
  - These proportions were somewhat higher than those reporting any prescription stimulant NMU

**Table 2. NMU of Non-Stimulant Drugs in Adolescents and Adults Reporting NMU of Prescription Stimulants (2010-2018)**

	Adolescents		Adults	
	Any Prescription Stimulant NMU (n=923)	Methylphenidate NMU (n=382)	Any Prescription Stimulant NMU (n=9,983)	Methylphenidate NMU (n=3,438)
Past 30-day NMU of Rx opioids	42.2%	47.6%	71.7%	74.0%
History of injection of Rx opioids	4.0%	6.8%	28.9%	34.5%
History of injecting any drug	83.2%	85.6%	44.3%	49.7%
Lifetime use of heroin	19.8%	24.1%	47.2%	51.5%

## CONCLUSIONS

Nonmedical use of prescription MPH products by multiple routes of administration remains prevalent in adolescents and adults and is associated with other high-risk behaviors such as heroin use

## References

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