Session VI: Public Health Considerations and Harm Reduction Strategies for ADHD Medication Use

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Forum on Drug Discovery, Development, and Translation
Forum on Neuroscience and Nervous System Disorders

Adult Attention Deficit/Hyperactivity Disorder: Diagnosis, Treatment, and Implications for Drug Development – A Workshop

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Misuse ("Non-Medical Use") of Stimulants

- Common among college students
  - College Prescription Drug Study
  - 19,539 students in 2018
  - 15.9% lifetime
  - 10% in the past year
- Also present in adolescence
  - Monitoring the Future Study
  - 231,141 students 2005-2020
  - 7.2% of 12th graders (past yr)
  - 6.5% of 10th graders (past yr)
  - 3.6% of 8th graders (past yr)
  - Varies widely from school to school in the US, 0% to >25%

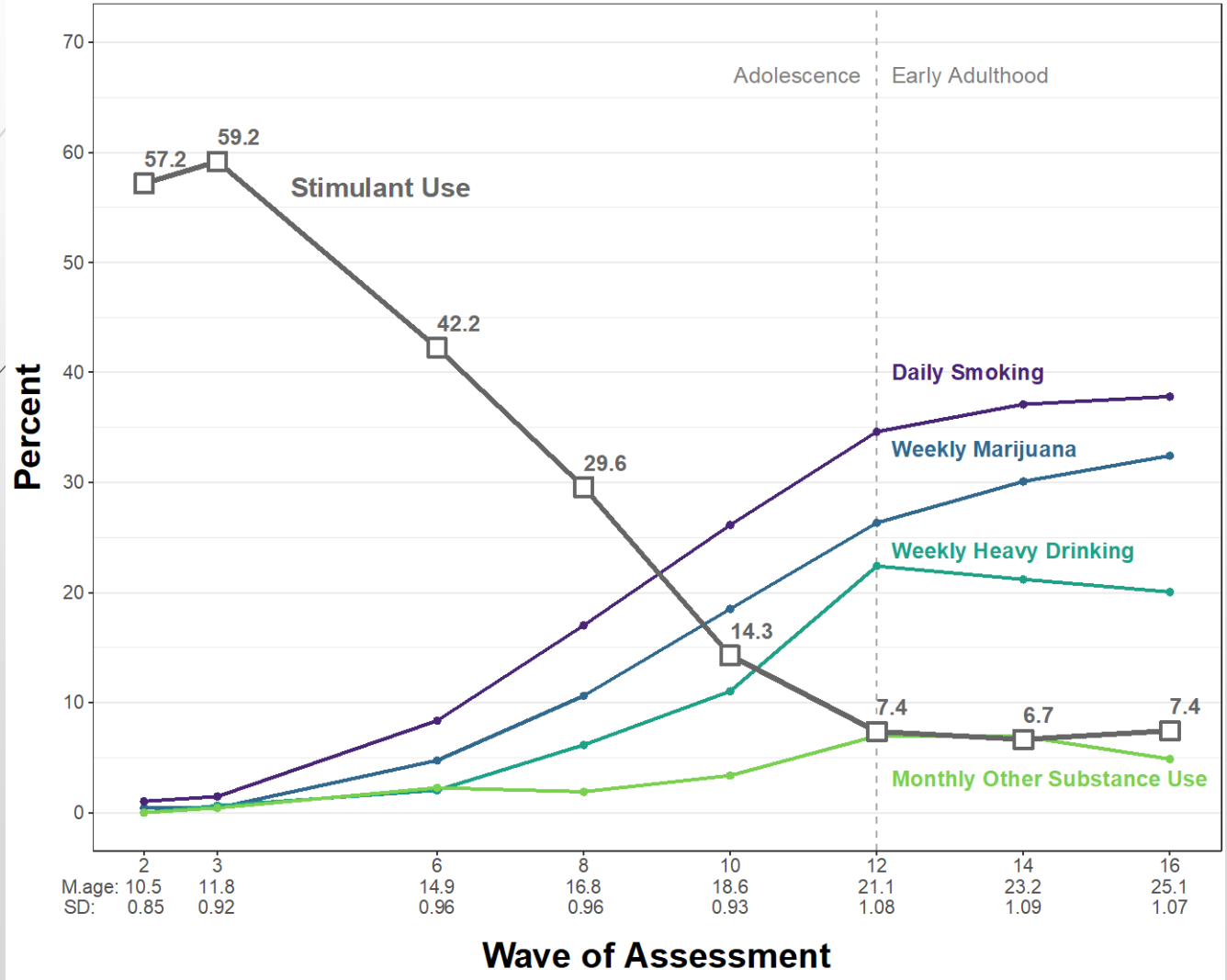
Phillips & McDaniel, 2018, Ohio State University Key Findings Report; Teter et al., 2020, J of Pharm Pract; McCabe et al., 2023, JAMA Network Open, April

Misuse ("Non-Medical Use") of Stimulants

- Many use infrequently
  - In College Prescription Drug Study (19,539 participants), 84% of those endorsing lifetime use reported past 12 months use 0-9 times
  - Similar results in 7–university survey (Kilmer…Arria, 2021)
- More common in schools with
  - More stimulant prescriptions
  - More White students
  - Higher parent education
  - More substance use
- More common among
  - Boys/men
  - 18-25 year olds
  - White students
  - Students with ADHD symptoms, lower grades, substance use, in fraternities/sororities
  - Stimulants initially prescribed at older ages
    - Consider potential reasons, including potentially different populations represented as a function of age diagnosed

Phillips & McDaniels, 2018; Arria et al., 2008, Pharmacotherapy; McCabe et al 2023 JAMA Network Open (Apr; July); Faraone et al 2020 JAACAP

Over time, stimulant medication use declined while substance use increased for children in a randomized controlled trial of ADHD treatments ("the MTA").



No associations found between stimulant treatment and adolescent or adult substance use/disorder.

Molina et al., 2023, JAMA Psychiatry

Misuse ("Non-Medical Use") of Stimulants

- Reasons
  - Academic performance (most common; majority endorse)
  - Recreation (less common; zero to ~1/3 endorse)
  - vs pain medication: to get high (43%) relieve pain (40%), College Prescriptions Drug Study
- Most common source of stimulants for non-medical use
  - Same-aged peers with prescriptions for their ADHD
  - Family
- How to prevent?
  - 25% to 48% of physician specialists did not feel qualified to educate high school-aged patients in the health risks and legal consequences of stimulant misuse and diversion.

Arria et al., 2008, Pharmacotherapy; McCabe et al 2023 JAMA Network Open (Apr; July); Faraone et al 2020 JAACAP; Colaneri et al., 2018, J Child Adolesc Psychopharm.

Training physicians in stimulant diversion prevention

Encouraging results for college student patients

- 18-25 years old, in college/trade school, PCP-prescribed stimulants (n=114)
- 6 primary care practices (half pediatric, half family medicine)
- Pre-post design
- Diversion 17% to 15%, ns
- Diversion risk factors that decreased
  - disclosure of stimulant use
  - number of times approached to divert
  - intent to divert
- High provider satisfaction

Molina et al., 2020, Acad Pediatrics

Stimulant Diversion Prevention (SDP) Randomized Clinical Trial in Pediatric Primary Care

7 Pediatric Practices

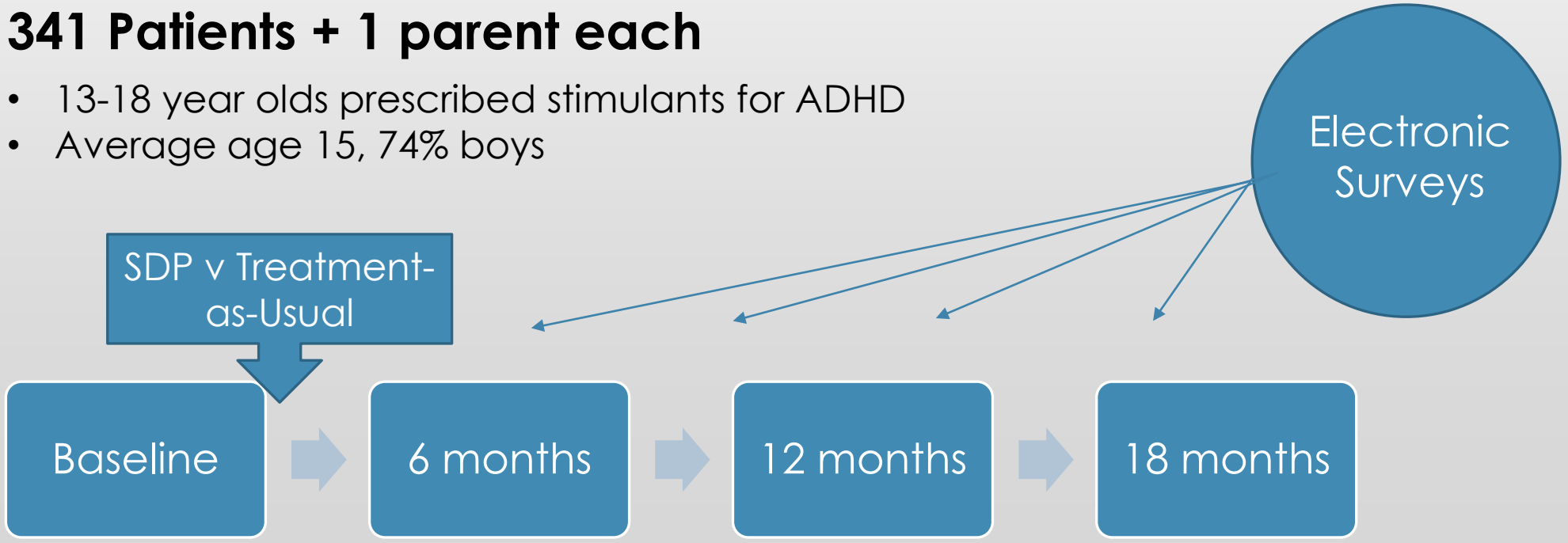
- 3 randomly assigned to SDP training

93 Providers

- Mostly pediatricians

341 Patients + 1 parent each

- 13-18 year olds prescribed stimulants for ADHD
- Average age 15, 74% boys



Diversion Risk Higher for Older Patients

- Approached to share or sell
  - 3% of 13–14 year-olds
  - 11% of 15–18 year-olds
- More treatment disclosure
- More tolerance of misuse and diversion
- Less daily medication use
- More substance use problems
- More risky peer environments
  - Peer attitudes and behaviors
  - E.g., 54% report knowing schoolmates who use stimulants non-medically

Molina et al., 2021,
J Dev Behav Pediatr

Important Associations Among Diversion Risk Factors

J Dev Behav Pediatr

More schoolmate misuse and diversion	**Approached to Divert** **Treatment Disclosure**
Stopped taking meds 6+ months More substance use-related problems	**Intention to Divert**

Workshop: Stimulant Diversion Prevention in Primary Care (SDP)

- One-hour interactive workshop
- PowerPoint presentation with educational material and recommended strategies
- 2–3 minute demonstrations of patient/parent:provider interactions
- Binder with handouts, assessment forms, and referral sources
  - Patient handout to facilitate discussion
  - Provider handout for brief reference
- All office staff invited
- Video-recorded for small number of staff unable to attend
- Meals and CME, satisfaction questions

Sample Slide

SDP Training
Take Home Points

Spans the course of patient care

- Educate your patient
- Be attentive to supply
- Assess and manage risk

Video Clips Demonstrating Brief Interactions

Sample Slide

Educate Your Families

"Protect Yourself, Your Friends, and Your Meds"

What can YOU do?

- Store medication in a place with limited access
- Be cautious about who you talk to about your medication
- Be prepared for requests
- Let your doctor know if medication is not working
- Be open and honest with your doctor

Provider Diversion Prevention Strategy Examples/Results

- Patient/Family Education
  - Remind your patient that their medication is only to be used by them
  - Significantly more often utilized by providers at 6, 12, and 18 months
- Medication Management
  - Ask how many pills your patient has remaining at home
- Assessment of Mental Health Symptoms & Functioning
  - Ask about ADHD symptoms
- Assessment of Risky Behavior
  - Ask about alcohol use

McGuier et al., 2022, Prev Sci

Provider-reported Determinants of Strategy Use

Attitudes: Effectiveness	**Providers can play an important role** in decreasing stimulant misuse and diversion.
Attitudes: Importance	Stimulant misuse and diversion is an **important problem.**
Implementation Climate	In this practice, **people** want to find ways **to decrease risk** of stimulant misuse and diversion.
Knowledge/Skill	**I know the appropriate questions to ask** when providing counseling regarding stimulant misuse and diversion.
Resource Constraints	**I have sufficient time** to address stimulant misuse and diversion with my patients.

McGuier et al., 2022, Prev Sci

Provider-reported Determinants: Statistically Significant Results

	Months after baseline		
	6 mos	12 mos	18 mos
Attitudes: Effectiveness	*	*	
Attitudes: Importance	*		
Implementation Climate	*	*	
Knowledge/Skill	*	*	*
Resource Constraints	*		*

McGuier et al., 2022, Prev Sci

Provider-reported Change in Knowledge/Skill Drove Change in Strategy Use

- Changes in knowledge/skill accounted for 49% of the effect of training on use of patient/family education strategies
- Statistically significant mediating pathway

Clinical Implications, Limitations, Next Steps

- Brief, one-time 45-minute training sufficient to change provider behavior over 18 months
- Provider training well-received and behavior changed
  - Disseminate?
- Longitudinal follow-up in progress
- More broadly, consider multi-pronged approaches as with substance use prevention that reflects multiple pathways to substance use (as well as development of culturally sensitive approaches, Bo et al., 2023, Clin Psych Rev).

Thank you

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- SDP video actors
- ~1,000 participants across both studies

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