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## Preventing the next epidemic: Prescribed stimulant abuse

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### Abstract

Prescribed stimulant abuse continues to rise along with prescriptions for attention deficit/hyperactivity disorders. When used with targeted symptoms the medications are effective. However, this escalating crisis is being overshadowed by the current opioid epidemic. Abuse of prescribed stimulants can lead to increases in risky behaviors, legal issues or death. The exposure and availability of prescription stimulants can be dangerous to young adults not equipped to handle the responsibility of appropriate use. The purpose of this manuscript is to provide healthcare providers with practical clinical considerations to reduce stimulant abuse and prevent the need to treat a substance use disorder.

Key words: Attention deficit hyperactivity disorder (ADHD), Substance use, Non medical use of prescriptions, Young adults, College students

## Introduction

Healthy People 2020 (HHS, 2010) identified a need to reduce the nonmedical use of stimulants among young adults. However, the percentage of consistent misuse/abuse continues to increase and impact lives.<sup>1</sup> Consequences of nonprescription drug use may include dangerous driving, elevated risk of unsafe sexual practices and graduating to illicit substances.<sup>2</sup> The Substance Abuse and Mental Health Services Administration's (SAMSHA) 2016 National Survey on Drug Use and Health identified almost two million people over the age of 12 misusing stimulants.<sup>3</sup> Stimulant misuse is described as the nonmedical use of prescribed stimulants by individuals with or without a prescription. Dilemmas surrounding diversion and misuse have been elevated related to the increased availability of prescribed stimulants.<sup>4</sup> The highest rates of diversion for students span 16% to 29% for nonmedical use to sell, give, or exchange prescribed stimulants.<sup>5</sup>

Stimulant abuse concerns have been well documented and are not currently receiving the attention that opioids are commanding; however, nonprescription stimulant abuse/misuse has the potential to rise based on the Monitoring the Future (2015) report of high school 12<sup>th</sup> graders. Greater than seven percent of 44,000 high schoolers participating in the 2015 survey reported abusing Adderall.<sup>6</sup>

The Centers for Disease Control estimates 11% of adolescents and young adults are diagnosed with attention deficit hyperactivity disorder (ADHD).<sup>7</sup> As these young adults age and matriculate through college, exposure to and participation in nonprescription stimulant use increases. The Substance Abuse and Mental Health Services Administration's (SAMSHA) 2014 National Survey on Drug Use identified the average age for an individual's first nonprescription stimulant use as 22 years old.<sup>8</sup> The American College Health Association (ACHA) estimates

7.8% of college students are diagnosed with ADHD. The survey of 33,512 students across the country cited approximately 6.7% of students engaged in using stimulants that were not prescribed to them.<sup>9</sup> The ACHA's Fall 2016 Executive Summary detailed risky behaviors students are prone to with inappropriate stimulant use.

The number of individuals diagnosed with attention deficit hyperactivity disorder (ADHD) or adult deficit disorder (ADD) has increased making the ability to inappropriately access stimulants readily available.<sup>2</sup> Research highlights the steady rise of stimulant use among college students for over 20 years. The National Health Interview Survey revealed a surge from 6.1% to 10.2 % for children and adolescents between 1997 and 2016, while the National Survey of Children's Health demonstrated 42% increase between 2003 and 2011 of ADHD diagnoses.<sup>10</sup>

Contrasting studies suggest individuals prescribed stimulants may either be at an elevated risk of misuse or there are no valid concerns for abuse issues. Additionally, researchers noted protective factors of treating ADHD reduced the potential for abuse.<sup>11</sup> Investigators have concluded the need for providers to be aware of comorbid substance use disorders when treating both ADHD and ADD.<sup>12</sup>

National Institute for Drug Abuse (NIDA) identifies clinicians as having considerable influence in identifying a patient's transition from misuse to addiction concerns. Utilizing brief interventions, clinical assessments to discuss medication adherence or current at risk behaviors may positively affect patient protective factors. Newly developed prescription drug monitoring programs (PDMP) are useful tools to assist healthcare providers to reduce the progression of nonprescription stimulant use and prevent substance use disorders. States and territories across the United States have implemented PDMPs to decrease diversion and prescription drug abuse.

With 80% of Americans seeing a clinician in the preceding 12 months, healthcare providers are in a unique position to impact potential abuse concerns.<sup>13</sup>

This paper will review the clinician's role to accurately assess and diagnose ADHD; discuss available screening tools; address the provider's role for prescribing stimulants safely; recognize risk factors for stimulant abuse, and implement harm reduction steps for treatment. The purpose of this manuscript is to provide healthcare providers with practical clinical considerations when prescribing stimulants.

### Background

Diagnosis and medication management of ADHD has increased exponentially over the last 20 years in the United States and outpaces countries around the world.<sup>14</sup> With greater than 10% of the population of adolescents and young adults being diagnosed with ADHD, positive implications of increased prevalence may indicate rising public knowledge, expanded health care access, and greater comfort of primary care providers with diagnosis and treatment. In primary care settings, providers frequently diagnosis children presenting with hyperactivity, impulsivity or inattention with ADHD utilizing [DSM-5 criteria](#). Six or more symptoms must be present in multiple settings and negatively impacting social, academic or occupational functioning for greater than six months and prior to age 12.<sup>15</sup> Revised diagnostic criteria in the DSM -5 resulted in an increased number of females diagnosed with ADHD symptoms due to an inattentive presentation of symptoms.<sup>10</sup>

Utilizing mental health professionals in addition to primary care providers is fundamental to addressing possible underlying mental health concerns. Comorbidity of ADHD and psychiatric diagnoses such as depression or anxiety can impact up to 50% of children. Children with comorbid conditions may experience increased social isolation, educational impairments

and require referrals for mental health services.<sup>16</sup> Having a co-occurring mental health diagnosis may place individuals at greater risk for abuse potential. Comorbidity could impede treatment and response to substance recovery efforts.<sup>17</sup>

Controversy continues surrounding the implications of stimulant use and potential for substance use disorders. Studies suggest protective factors associated with stimulant use reduced substance abuse as patients' mental health needs were appropriately addressed. The long-term use of ADHD medication decreased the rate of substance use for approximately four years and concluded by indicating clinicians should remain attentive to issues surrounding diversion.<sup>11</sup> Medication therapy does not increase risk for substance use and prompt initiation of treatment for ADHD benefits an individual's mental health and protects patients from later substance abuse.<sup>18</sup>

Stimulants increase norepinephrine and dopamine actions to address hallmark symptoms of hyperactivity, impulsivity, and inattention. The pharmacological mechanism of these medications is similar to illicit substances cocaine and methamphetamine.<sup>19</sup> Additionally, individuals may experience issues around executive performance and emotional sensitivity which affect social, educational, and occupational interactions.<sup>20</sup> Consequently, disturbances with limited executive functioning, issues with self-restraint, academic deficiencies and inability to self-regulate may lead to developing substance use disorders.<sup>21</sup>

Adverse implications highlight new behaviors of misuse and abuse are harmful and potentially lead to substance use disorders. Substance use is an emerging threat and public health issue affecting the health of young adults, families and communities.<sup>22</sup> Patterns of misuse have centered on stimulant use to improve grades and enhance academic opportunities. Students have obtained stimulant medications related to societal and parental pressure to excel

academically. Research addresses the popular thought of stimulant medications as low risk and challenge expectations of academic benefit with stimulant use.<sup>23</sup> Dangers for students include not taking medication as prescribed, sharing with peers and using stimulants in combination with alcohol or illicit substances. Consequences of perceptions of decreased dangerousness such as accidental poisonings related to misuse of nonprescription stimulants have risen as well.<sup>24</sup> Clinicians are becoming increasingly concerned about the over diagnosis of ADHD related to academic performance and the subsequent request for stimulants.

### Clinical Implications

The American Academy of Pediatrics (AAP) released clinical guidelines for the treatment of ADHD for children and adolescents [Process of Care Algorithm](#). Nurse Practitioners are increasingly the primary care provider for these patients. Clinical treatment will vary according to the provider's practice and may incorporate medication and non-medication regimens. Behavioral interventions are recommended for pre-school aged children. It is incumbent amongst clinicians in primary care; clinics and private practice settings working with children and adolescents to remain informed regarding evidenced based practices for prescribing. These include ensuring an accurate ADHD diagnosis, screening for alcohol and illicit substances, and maintain detailed documentation.<sup>25</sup> For children and adolescents requiring further ADHD symptomatology support with a comorbid psychiatric diagnosis, collaborating with psychiatric mental health nurse practitioners adheres to best practice management of behavioral therapy and medication treatment. Treating only one component of a complex diagnosis minimizes optimal health management and referral to specialty practice is recommended to reduce higher rates of service utilization.<sup>16</sup>



Assessments will need to incorporate a physical exam noting possible symptoms of stimulant abuse; tremors, pupillary dilation, increased reflexes, changes to blood pressure or heart rate, weight loss or increased agitation.<sup>15</sup> Clinicians must question incidences of risky behaviors such as driving under the influence, addressing unsafe sexual behaviors and initiating illicit substance usage. Primary care providers may want to ascertain recent emergency room visits; answers may yield information regarding current level of functioning. It's important for all providers interacting with patients prescribed stimulants to ask about prescribed medication adherence, verify prescriptions each visit via local/state prescription and drug monitoring programs. Clinicians should remain aware of prescribed medications and abuse potential [List of Most Commonly Used Medications for ADHD With Suspected Relative Abuse Potential](#).

Employing medication regimen changes is crucial if misuse or diversion is suspected. Changes may include switching patient to a non or long acting stimulant, conducting random urine screens or implementing medication contracts. Mental health providers are noted to implement active prevention practices when compared to other healthcare specialties.<sup>4</sup> Clinicians now have a wide variety of evidenced based guidelines, publications, and complementary downloads to address growing stimulant abuse concerns.

Anticipatory guidance is crucial for both parents and students. Existing gaps have been identified to make students, parents and providers aware of the dangers of stimulant abuse. If age appropriate prepare to discuss safety with parents [Discussion Points for Anticipatory Guidance Regarding Stimulants and Substance Use](#). Many providers advocate implementing universal preventative substance abuse plans when patients are initially prescribed medication.<sup>26</sup> Parents must be educated to the consequences of nonprescription drug use which may include dangerous driving, elevated risk of unsafe sexual practices and graduating to illicit substances.

Providers must be aware of potential abuse activities; requesting medication refills early, reporting lost or misplaced prescriptions. Awareness is vital for students, parents and clinicians as failure to address risky behaviors could result in tragic consequences associated with stimulant abuse.<sup>27</sup>

College student counseling centers in close proximity to hospitals may partner to focus on a multidisciplinary approach to coordinate treatment. Establishing mutual lines of communication concentrates available resources, influences prevention efforts and promotes safety concerns. Student counseling centers may be an individual's first line of defense when initial misuse begins. Screening practices will need to incorporate discussions addressing risky behaviors. Many student counseling centers providing prescriptions adhere to guidelines via medication agreements. These agreements highlight procedures to ensure the safe management of ADHD medications. They also provide referral services if substance abuse treatment is needed. The Coalition to Prevent ADHD Medication Misuse (CPAMM), launched in 2016 is an online resource for academic administrators, medical providers and athletic staff to initiate discussions to prevent misuse, abuse, and diversion of prescribed stimulants.<sup>28</sup>

If the above actions are unsuccessful in engaging patients, providers may utilize harm reduction as an intervention. Harm reduction as a technique attempts to limit damaging health and social outcomes for individuals who chose to continue to engage in unsafe practices and risky behaviors.<sup>29</sup> Harm reduction as an intervention continues to be controversial as opponents state it allows the abuser to minimize the need for treatment. Supporters counter harm reduction is individualized to support flexibility in engaging those in need of treatment.<sup>30</sup> Research highlights this approach specifically for risky behaviors related to tobacco use and addiction. Individuals are held accountable for their actions without termination of healthcare.<sup>31</sup> Clinicians

familiar with this modality may recommend available resources or implement evidence-based practices for supporting prevention, providing treatment interventions or referrals to addiction services. Emergency department providers are in a unique position to effortlessly employ harm reduction techniques while performing SAMSHA's easily implemented evidenced based tool - Screening, Brief Intervention, and Referral to Treatment (SBIRT).<sup>32</sup> Emergency clinicians are able to offer reliable information about health concerns for individuals seeking treatment for consequences leading to emergency room visits associated with stimulant abuse in a brief constructive manner.<sup>33</sup>

### Conclusion

Stimulants when used as prescribed are highly effective for addressing ADHD symptoms. However, there's potentially another serious public health crisis on the horizon given the continued rise of young adults misusing and abusing prescribed stimulants. Access, bias, office visits time constraints and lack of familiarity with resources lessens prescriber opportunities to address misuse, abuse and risky behaviors associated with stimulant use. The level of acceptance for misuse remains a dangerous reality as many students, parents and clinicians perceive stimulants as safe and the misuse is not categorized in the same way that opiate abuse is seen and acted upon. Clinicians maintain responsibility for discussing substance use while conducting clinical assessments. Future implications for research is wide and could target executive functioning, academic performance, and interventions related to diversion or determine individuals at elevated risk of stimulant misuse and abuse. Without interventions, risky behaviors will continue to escalate creating dangerous consequences for individuals, families and communities.

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