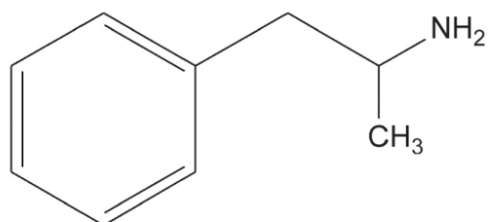
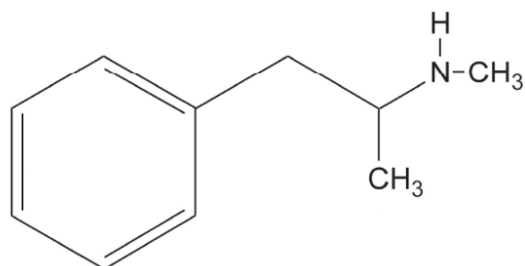


Psychostimulants in New Mexico

Amphetamine



Methamphetamine



**New Mexico Statewide Epidemiological Outcomes Workgroup
White Paper Series**



Produced by Coop Consulting, Inc.

Prepared by Jesse Gremore on behalf of the New Mexico Statewide Epidemiological Outcomes Workgroup

August 18, 2022

The cover images are the chemical structures of amphetamine and methamphetamine. These substances both have the amphetamine molecule's structure. The only difference between the two is that methamphetamine has an additional methyl (-CH₃) group.

Image credit: Pharmacologic mechanisms of crystal meth. Stephen J. Kish. CMAJ Jun 2008.

Acknowledgements: James Davis, Robert Kelly, Alisha Campbell, Annaliese Mayette, Phillip Fiuty, Dylan Pell, and Hayley Peterson

Mission: New Mexico's Statewide Epidemiological and Outcomes Workgroup (SEOW) reviews and disseminates data about substance abuse and misuse and their consequences. It also identifies best practice information about evidence-based prevention strategies, policies and practices that can lead to successful outcomes for New Mexicans. The purpose of this two-fold work is to inform communities so that they can better target behaviors and risk factors that can be positively impacted by the implementation of well-chosen, evidence-based prevention approaches that are appropriate for the population. The important work of the SEOW is directed by the Office of Substance Abuse Prevention (Behavioral Health Services Division, Human Services Department) and supported by federal funding from the Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration.

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Abstract

Psychostimulants, a psychoactive class of stimulants that includes methamphetamine, are increasingly involved in deaths in New Mexico, nationally, and globally. The goal of this white paper is to provide information to key stakeholders working across New Mexico's prevention system that may be helpful for prevention program planning to address psychostimulant misuse. This white paper will provide relevant background information on stimulants, what they are, licit uses for stimulants, the important connections between stimulant use and mental health, access to stimulants in New Mexico, illicit use and associated risks, and finally, opportunities to address stimulant misuse. It will also explore why methamphetamine use is prevalent in New Mexico, and what existing primary prevention strategies can be adapted for methamphetamine use. This paper is recommended to be read in series, beginning with *The White House Plan to Address Methamphetamine Use*ⁱ and "It's Called Overamping"ⁱⁱ, a collaboration between University of New Mexico, University of Nevada-Reno, and two well-established harm reduction programs in New Mexico and Nevada.

Stimulants

Stimulants are the broad class of substances that stimulate and excite the central nervous system. Nervous system depressant classes include opioids, benzodiazepines, and alcohol. In comparison to depressant classes, stimulants have the opposite effect on the body.

Psychostimulants, a narrower class of psychoactive stimulants, hijack the dopamine pathway and produce pleasurable, invigorating, and rewarding feelings that ultimately deplete dopamine. Psychostimulants can be found in stimulants prescribed to treat narcolepsy, attention deficit disorders (ADD) and in some extreme cases, to facilitate weight loss. Examples of licit stimulants include prescription methamphetamine and Adderall. Examples of illicit psychostimulants include cocaine, ecstasy, MDMA, and methamphetamine (See Appendix A). Methamphetamine can be found as a pharmacy-grade prescription and an illicit substance form.

Amphetamine and methamphetamine, two widely available types of psychostimulants, are molecularly related to each other. This chemical relationship has significant data interpretation implications. Because they share the same amphetamine structural backbone, the two substances are generally indistinguishable once metabolized by the liver and kidneys. Adderall and methamphetamine appear in most toxicology reports as the same byproduct, amphetamine. This is because amphetamine is the parent molecule of methamphetamine. Because amphetamine and methamphetamine are generally indistinguishable once metabolized, caution must be exercised when looking at data related to methamphetamine.

Post-mortem toxicology is beyond the scope of this white paper, however psychostimulant toxicological nuances are important to highlight because of their impact on assessment and evaluation. The toxicology testing required to determine the source of a positive result for amphetamines may include an immunoassay test and then at least one cycle of mass spectrometry, if not twoⁱⁱⁱ. This somewhat lengthy process can let medical examiners know if a positive amphetamine result was from prescription drugs such as Adderall, from metabolized illicit methamphetamine, from Selegiline, a medicine to treat Parkinson's Disease, or from Vicks VapoInhaler, a levoamphetamine-based decongestant.^{iv}

Figure 1: Amphetamine, methamphetamine, and their enantiomers (levo- and dextro-molecular configurations) from multiple medicines are identified in most toxicology by the parent molecule, amphetamine. The substances listed share the same cause of death code used in New Mexico to report cause of death.

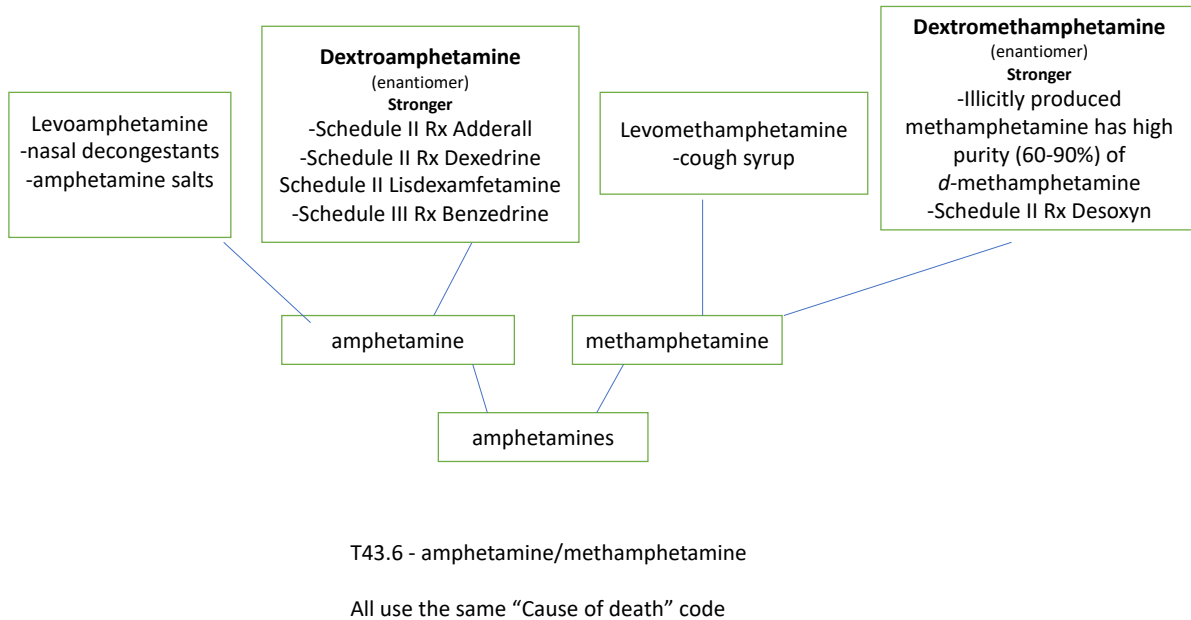


Image credit: Coop Consulting, Inc. 2022

A footnote in the 2022 White House Plan to Address Methamphetamine’s footnote cautions about interpretation of cause of death in stimulant data: “The National Center on Health Statistics completes a special analysis of death certificate text, and in those conditions, they are able to identify the contribution of specific drugs, like methamphetamine.”^v

Medical examiner reports use the same code, “T43.6 – amphetamine/methamphetamine” to indicate that the parent amphetamine class was involved in the cause of death. (Figure 1) This is the code used by New Mexico’s Department of Health to represent not just deaths related to acute intoxication of methamphetamine, but all deaths where amphetamine/methamphetamine was identified, including deaths from cardiovascular issues such as heart attack or stroke. This general lack of specificity in coding causes of death might be one of the reasons the Office of National Drug Control Policy (ONDCP) does not use methamphetamine-related deaths as a primary measure to evaluate methamphetamine impact. Instead ONDCP uses the National Survey of Drug Use and Health and SAMHSA’s Treatment Episode Data to track methamphetamine’s grip on the nation.^{vi}

Licit Use for Psychostimulants

Prescription stimulants are authorized by the Federal Drug Administration (FDA) to treat Attention Deficit Disorder, Attention Deficit Disorders with Hyperactivity (ADD/ADHD), narcolepsy, and sometimes extreme weight loss. Narcolepsy and weight loss via stimulant

treatment accounted for 25% of New Mexico’s stimulant prescriptions in the fourth quarter of 2021. ADHD is usually diagnosed in children and adolescents, but its incidence is increasing in New Mexico. (Figures 5 and 6).

An increase in adult ADHD diagnosis has also been reported by the Veteran Health Association (VHA). In 2016, the VHA reported approximately 6,500 cases, whereas in 2019, it reported 30,000 cases. The VHA notes that with adjustment for age, the annual prevalence, or total existing cases in a population of ADHD increased from 0.23 to 0.84 percent, while the incidence, the measure of new cases, increased from 0.14 to 0.48 percent.^{vii}

Figure 2: The number of stimulant patients in New Mexico by age group in 2021 Q4. NMDOH.

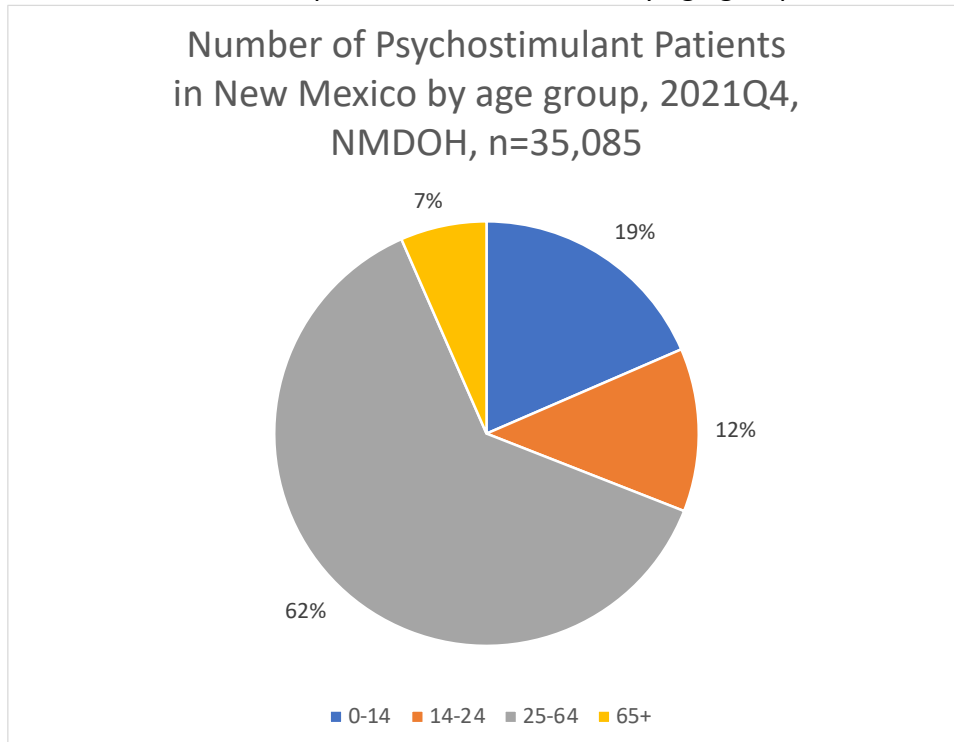


Image credit: Coop Consulting, Inc. 2022

Children and adolescents between 0-14 years old account for 19% of the population in New Mexico receiving psychostimulants to treat ADHD. (Figure 2) Patients in New Mexico aged 0-14 experienced a decline in ADHD medication treatment after 2019 (Figure 3) while female patients aged 14-24 experienced an increase in prescription treatment of ADHD, male patients experienced a decrease (Figure 4). New Mexico’s Prescription Drug Monitoring Program (PDMP) data reveals that adult ADD and ADHD medications have grown significantly in New Mexico for adults aged 25 years and over since 2010. (Figures 5 and 6)

Figures 3-6: Patients by age group with ADHD prescriptions per 1,000, 2010-2021. New Mexico Board of Pharmacy.

Figure 3: Patients ages 0-14 with ADHD prescriptions per 1,000 between 2010-2021.

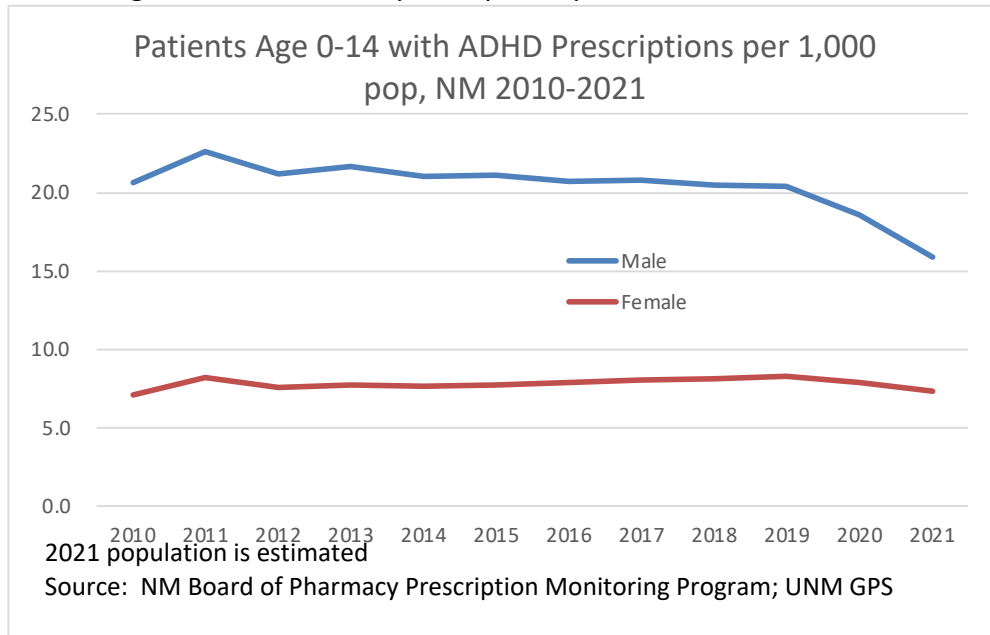


Image credit: New Mexico Department of Health, 2022

Figure 4: Patients ages 15-24 with ADHD prescriptions per 1,000 between 2010-2021.

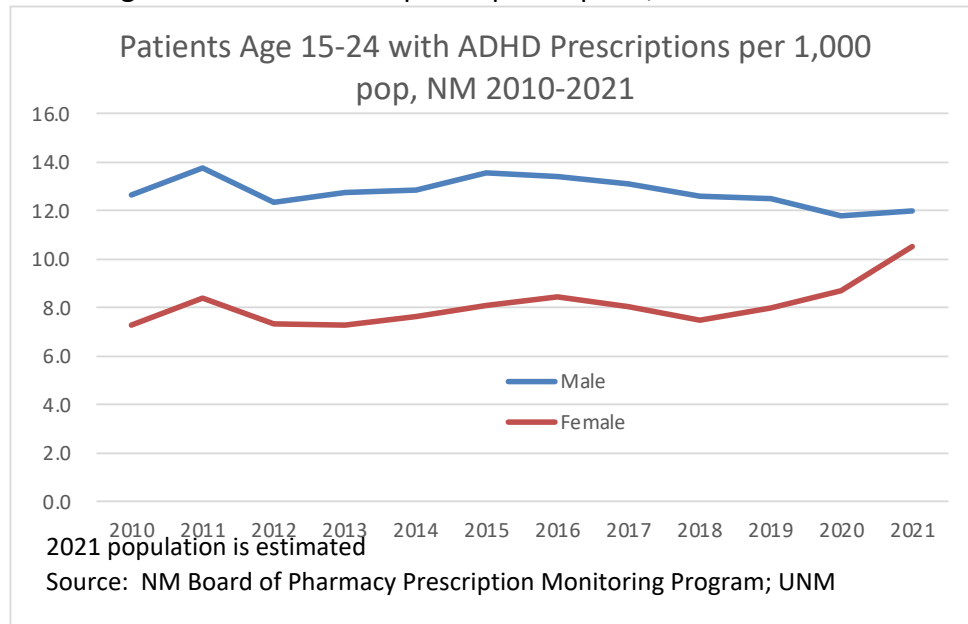


Image credit: New Mexico Department of Health, 2022

Figure 5: Patients ages 25-64 with ADHD prescriptions per 1,000 between 2010-2021.

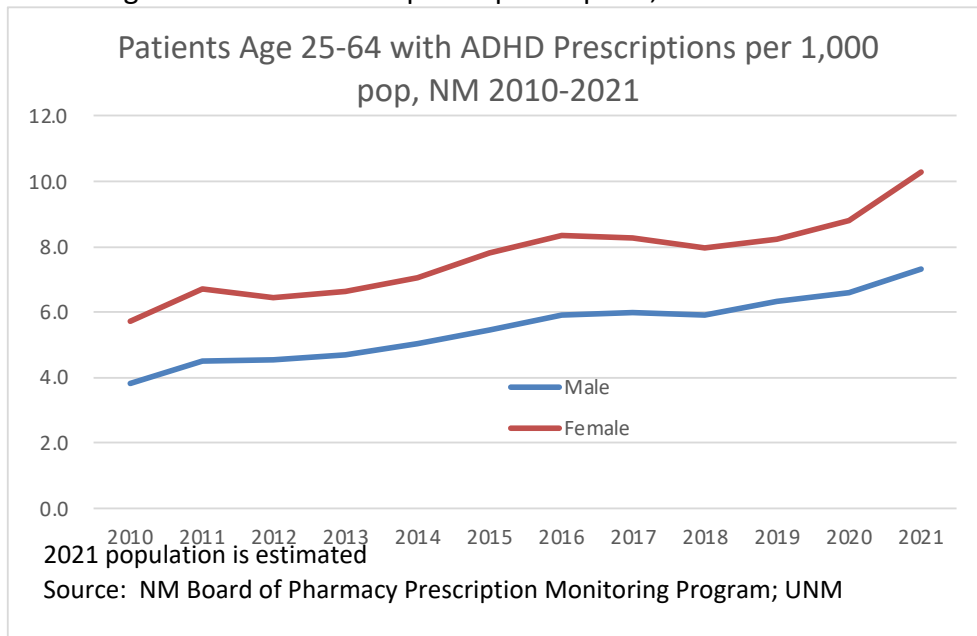


Image credit: New Mexico Department of Health, 2022

Figure 6: Patients ages 65+ with ADHD prescriptions per 1,000 between 2010-2021.

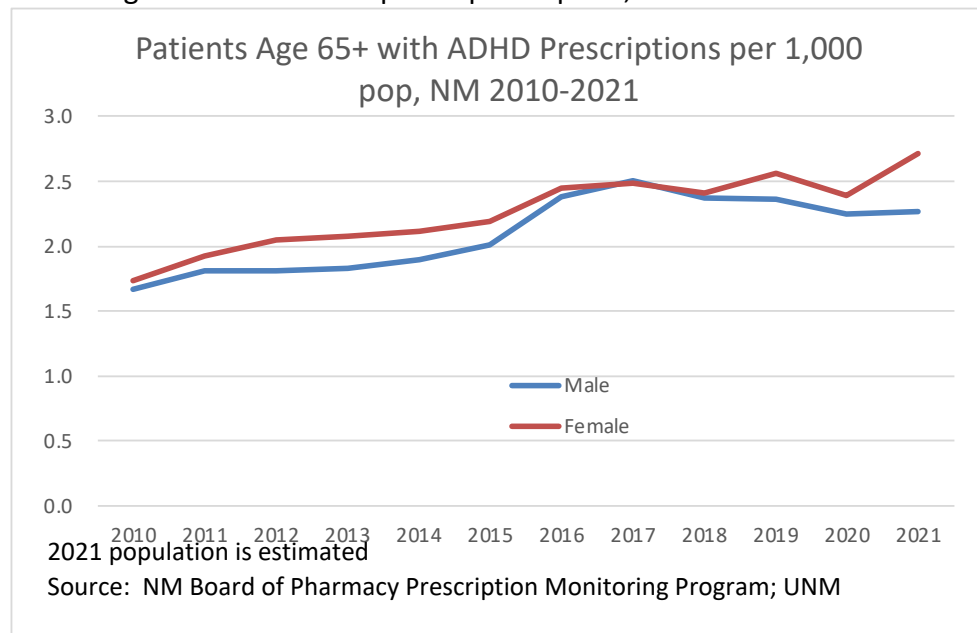


Image credit: New Mexico Department of Health, 2022

The Connection Between Stimulant Use and Mental Health

Untreated ADHD and ADD are associated with a long list of heavy health consequences, including significantly increased mortality rates due to deaths from unnatural causes and accidents.^{viii} Since parts of the brain that problem solve, plan, understand social cues, and control impulses are affected by ADHD, untreated ADHD ^{ix} is associated with injury-deaths, substance use, and homelessness.^x Children with untreated ADHD may not succeed in grade

school, may fall behind or get poor grades. They may struggle to control emotions and impulses. This can cause social problems. Many children with untreated ADHD have lower self-esteem and higher prevalence of mental health issues such as substance use. Untreated ADHD increases the risk of future substance use.

Recent research theorizes that ADD/ADHD is caused by genetics approximately 2/3 of the time, while the other third is attributed to physical changes associated with trauma to parts of the brain early in life.^{xi} Other studies have reported that ADD/ADHD develops when many genetic and environmental risk factors accumulate into attention deficit disorder symptoms. Regardless of the cause, many mental health professionals and researchers agree that there are a variety of treatments for ADD/ADHD that allow people to experience better health outcomes, likening ADD/ADHD medication treatment to insulin that controls diabetes.^{xii} Another research finding about ADD/ADHD is that patients often have at least one other co-morbid mental health issue, such as anxiety, depression, bipolar personality disorders, or substance use disorders.^{xiii}

ADHD/ADD Treatment in New Mexico

The Center for Disease Control (CDC) estimated in 2016 that approximately 62% of US youth with ADHD elected to use medication to treat ADHD, while 47% elected to treat with behavioral treatment. Seventy-seven percent (77%) of youth with ADHD engaged with at least one form of treatment, while 23% of youth are estimated to have no engagement with any ADHD treatment.^{xiv}

The number of practicing psychiatrists in New Mexico is very low, limiting treatment capacity for serious psychiatric conditions in the state. In turn, the lack of psychiatric treatment capacity increases burden on pediatricians and general practitioners to treat psychiatric issues in addition to managing preventive care. The 2016 National Survey of Children's Health estimated that 8.5% of the United States' 0–18-year-old population were receiving a prescription for ADHD. Comparatively, New Mexico's PDMP reveals that only 1.6% of New Mexicans between 0-14 are receiving medication treatment for ADHD. New Mexico may be grossly undertreating youth populations for ADHD compared to the rest of the United States (Figure 7 and Figure 8).

Figure 7: National Survey of Children’s Health: Percent of youth 0-18 receiving a prescription of ADHD.

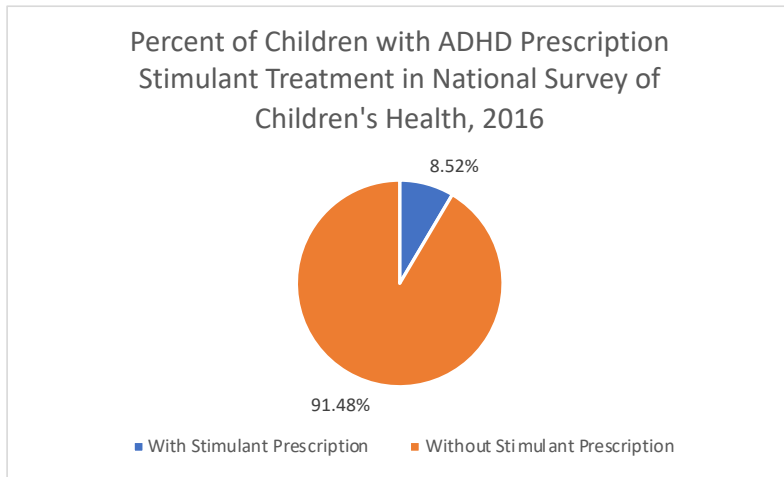


Image credit: Coop Consulting, Inc. 2022

Figure 8: New Mexicans 0-14 years old with a stimulant prescription for ADHD in 2021 Q4 from New Mexico Department of Health

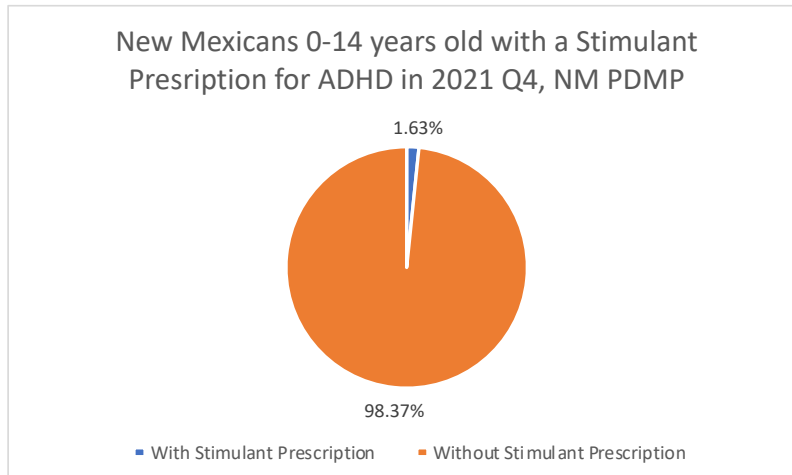
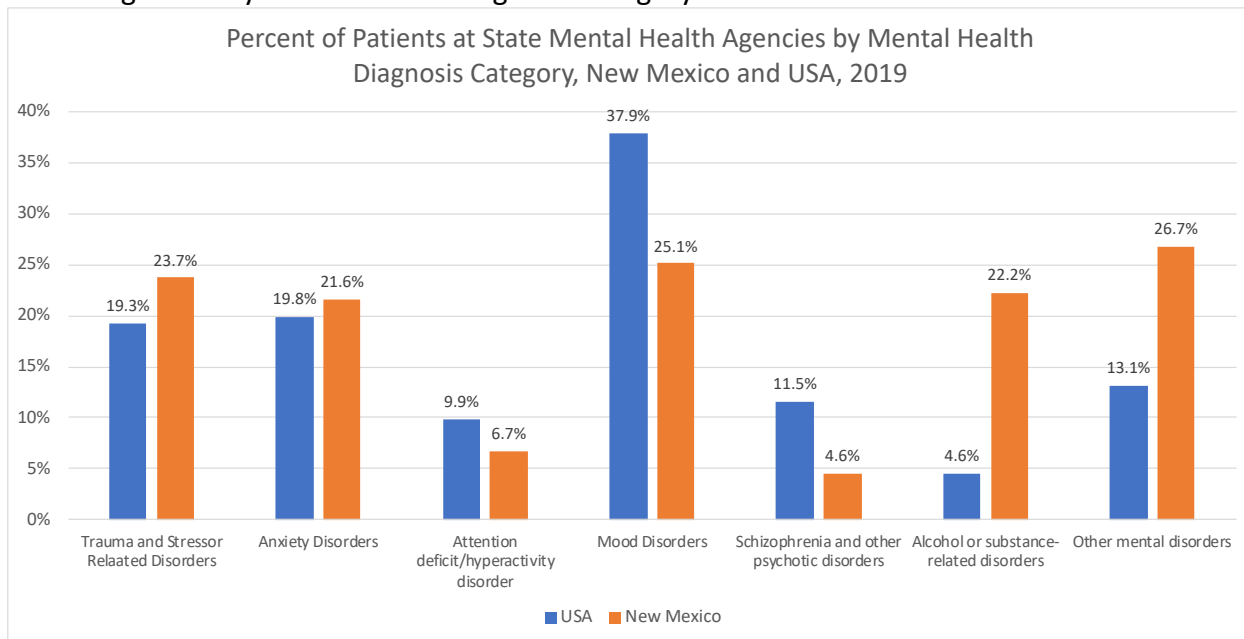


Image credit: Coop Consulting, Inc. 2022

Psychiatry providers are the most equipped to treat ADHD/ADD, but they are not the only medical specialty that can diagnose and treat it. Because of limited psychiatric care in New Mexico and high levels of stigma associated with mental health treatment, it is possible that people with undiagnosed and untreated ADD and ADHD are unwittingly treating themselves with illicit psychostimulants in lieu of limited access to ADHD treatment.

Figure 9: Comparison of patients in New Mexico and the USA: Percent of Patients at state mental agencies by mental health diagnosis category in 2019.



NOTE: Percentages may not sum to 100 percent due to multiple diagnoses per client and/or rounding.

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Mental Health Treatment Episode Data Set (MH-TEDS) and Mental Health Client-Level Data (MH-CLD), 2014–2019 reporting periods. Data as of 10.08.2020.

Image credit: Coop Consulting, Inc. 2022

Figure 9 depicts a comparison of mental health diagnoses between the United States and New Mexico in 2019 as reported in SAMHSA’s 2014-2019 Mental Health Annual Report, Use of Mental Health Services: National Client-Level Data^{xv}. This comparison shows that in 2019, New Mexico had lower engagement of state mental health services for ADHD and schizophrenia compared to the United States as a whole.¹

Other PDMP data shows a dip in the number of ADHD/ADD prescriptions to 14–25-year-olds in New Mexico (Figure 10). To better understand this shift in treatment engagement, it would be beneficial to examine stimulant PDMP data further with payor information. The disruption of health care coverage during this young adult period after adolescence may be associated with a shift in access to stable management of a chronic mental health issue. Stimulant data specific to New Mexicans 18-24 may provide some clarity on this transition from older adolescence to young adulthood.

¹ The limitations of the above Figure 9 include that only 47 of 50 states, and those states only report individuals served through state mental health agencies during a state-defined 12-month reporting period. This data does not represent national demand for mental health treatment or describe the mental health status of the national population. Furthermore, New Mexico is the highest Medicaid-enrolled state in the nation, so the data may be skewed in comparison to states with larger portions of privately funded healthcare. Finally, rates would have made a stronger comparison than percentages, but rates were not available with this dataset.

Figure 10: Number of stimulant patients with chronic stimulant use (greater than 90 days of medicine supply in 6 months) in New Mexico in 2021 Q4, NMDOH

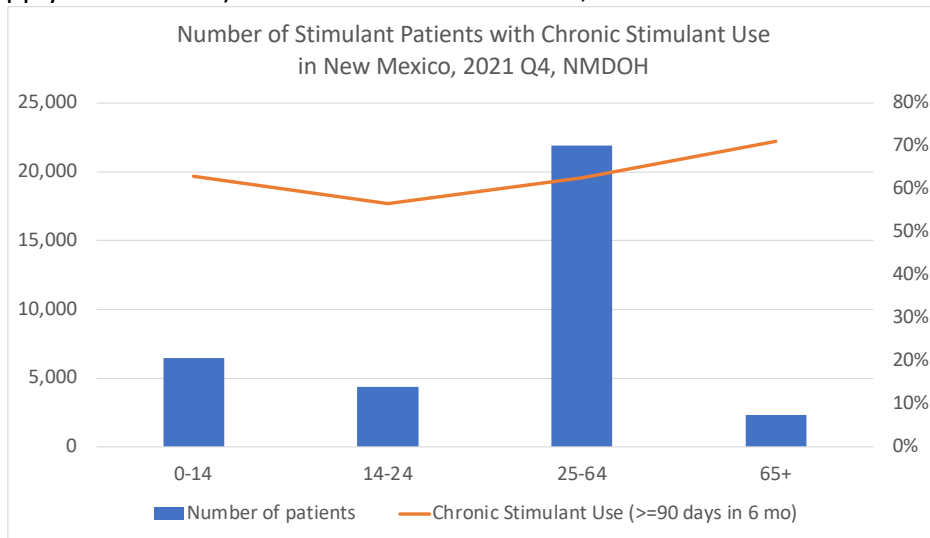


Image credit: Coop Consulting, Inc. 2022

In New Mexico, ADHD was the second most frequent diagnosis associated with male adolescent hospitalization after depressive disorders in 2020 (Figure 11).^{xvi} At this time, it is unclear what prompts an ADHD-related hospitalization, what may be involved in an ADHD hospitalization, or what the outcomes of the hospitalization or intervention are.

Figure 11: Hospitalizations by diagnosis, sex, and age in New Mexico, 2020.

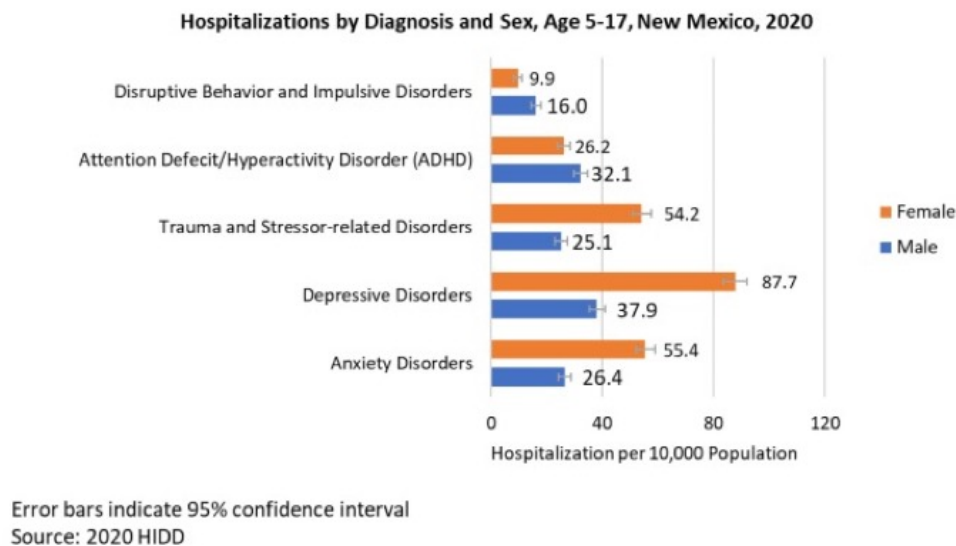


Image credit: State of Mental Health, 2022. New Mexico Department of Health.

People who use psychostimulant medications to treat ADD/ADHD are not necessarily more likely to have substance use disorders than people who do not use ADD/ADHD psychostimulant medications. ADHD and ADD treatments are associated with better outcomes than if

ADD/ADHD were untreated. ADHD/ADD treatments have expanded over the years, with several non-stimulant medication therapies, such as Strattera (atomoxetine) and Qelbree (viloxazine) becoming available in the early 2000's and other behavioral health treatment options, such as Cognitive Behavioral Therapy techniques.

Controlled Stimulant Prescriptions

Several prescription stimulants commonly prescribed for ADD/ADHD are controlled prescriptions, sharing the same prescribing and dispensing regulations as powerful opioids, such as fentanyl and morphine.^{xvii} Not all ADD/ADHD medications are in the stimulant class. Schedule II medicines are grouped together because of their extreme risk for tolerance and dependence.

The Drug Enforcement Administration's (DEA) Controlled Prescription Regulations call for an appropriate diagnosis code attached to the controlled prescription. Examples of inappropriate diagnoses codes attached to controlled stimulant prescriptions include performance enhancement, fatigue management, most weight loss, medication assisted therapy for stimulant use disorders, and adjunctive treatment for depressive disorders.^{xviii} Examples of appropriate diagnoses are ADD/ADHD, narcolepsy, and in some cases, extreme weight loss. A 2016 VHA study found that approximately 40% of veterans' prescription stimulants did not have an appropriate diagnosis code.^{xix}

Prescribers and pharmacists are bound through their DEA licensure to ensure that psychostimulant prescriptions are for a legitimate medical purpose as defined above. The PDMP monitors psychostimulant prescriptions, in addition to opioids and benzodiazepines. Prescribers and pharmacists are required by the DEA to check the PDMP and keep record of the PDMP check when they prescribe or dispense controlled stimulants. PDMP checking is also required with other schedule II substances, such as opioids and benzodiazepines.

There is one recent notable national initiative to curb inappropriate stimulant prescribing, separate from other federal initiatives. Inappropriate stimulant prescribing has been identified as a priority issue within the VHA^{xx}. Inappropriate prescribing and polypharmacy of psychostimulants with opioids and/or benzodiazepines are targeted by the VHA's Stimulant Safety Initiative. Modeled after safe opioid prescribing strategies, stimulant prescribing safety leverages existing PDMP regulations through prescriber and pharmacist education about stimulant misuse.

Stimulants and Youth Social Access

A significant portion of stimulants are prescribed to youth and young adults in New Mexico. (Figure 2 and Figure 12). According to the PDMP, in 2021 Q4, there were approximately seven times more stimulant patients ages 0-14 than opioid patients 0-14 (Figure 12). Prescription stimulants have a general perception of safety, possibly because they are often prescribed to children. This is an important difference between prescription opioid and prescription stimulants, indicating that there is opportunity to develop and disseminate prescription stimulant misuse prevention messaging at schools and with parents.

The National Institute of Mental Health (NIMH) estimates an ADHD/ADD prevalence of 3-5% in preschool and school age children.^{xxi} “Therefore, in a class of 25 to 30 children, it is likely that at least one student will have this condition”.^{xxii} The youth who do receive these controlled prescriptions may be a social access point for peers without ADHD to experiment. Evidence from NIMH suggests that about 30-65% of childhood ADHD cases persist into adulthood.

Figure 12: Comparison of opioid and stimulant patients by age group in New Mexico, 2021 Q4. NMDOH

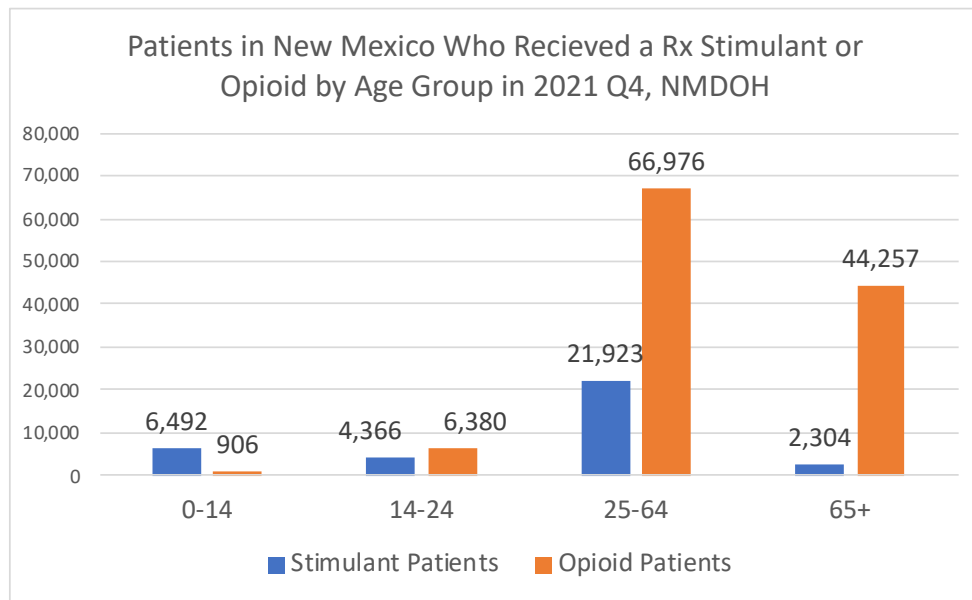


Image credit: Coop Consulting, Inc. 2022

Stimulants and College Students

Recreational, or non-medical prescription psychostimulant misuse among young adults in college is estimated to be around 40%, varying geographically.^{xxiii} Diversion and misuse of prescription stimulants in college settings is common. Medications that students report using non-medically include Adderall, Ritalin, and Vyvanse. Many college students report misusing these ADHD/ADD medications because they believe they achieve an increase in attention and academic performance. One study also found that despite this perception of performance improvement, non-medical use of ADHD medications negatively correlates with GPA^{xxiv}. Other findings included that unprescribed, diverted psychostimulants were more likely to be accessed through fraternities and sororities than from friends.^{xxv}

Illicit use of stimulants and the risks associated with illicit use

While prescription stimulant diversion and misuse is concerning, methamphetamine is the most diverted and seized psychostimulant. According to the DEA’s 2020 National Forensic Laboratory Information System Report, 91.3% of stimulants seized are methamphetamine.^{xxvi} Methamphetamine is increasingly being seized in pill form, mimicking prescription psychostimulants. Methamphetamine is also available in liquid form and as a crystalline rock.

In September 2021, the DEA issued a public safety alert on the sharp increase of fake prescription pills that are illegally manufactured by criminal drug networks to look like legitimate prescription stimulants such as amphetamines or Adderall.^{xxvii} While marketed “on the street” as pharmacy-grade Adderall, these counterfeit pills contain methamphetamine and may contain a variety of other concerning contaminants, such as fentanyl. Methamphetamine is frequently consumed through crushed pill smoking or snorting, and through intravenous injection.

Polysubstance Use

Co-use of psychostimulants and other substances, such as opioids is increasingly popular. Among New Mexico’s 926 methamphetamine-involved deaths between 2016-2020,

- 26% involved an opioid
- 42% of the 926 deaths were single-drug related deaths
- 10.5% involved alcohol

Of the 311 methamphetamine deaths that involved two substances between 2016-2020, 78% of the other substances were opioids.^{xxviii}

Researchers have studied treatment populations for concurrent use of methamphetamine and opioids, revealing qualitative insights about why the combination is common. Findings include opioid contamination of a stimulant, syringes for sale are pre-mixed with opioids and stimulants, the combination prolongs the psychoactive experience (lower cost for more value), and users reported feeling more functional using the two together^{xxix}. Methamphetamine is also reported by study participants to help with opioid withdrawal^{xxxi}. There was also an important misconception identified; using a stimulant is protective against opioid overdose. Stimulants are not protective against opioid overdose. Narcan administration and oxygenation are protective against overdose death.

Methamphetamine use comes with many major health risks. Methamphetamine use consequences include potentially long-lasting cognitive deficits, negative oral health outcomes, osteoporosis, increased risk of Parkinson’s disease, cardiovascular disease, and congestive heart failure. Long-term methamphetamine use is associated with changes to the parts of the brain involved with motor speed, emotions, and memory. One database study of over 35 million patients found a 27% increase in sudden cardiac death incidence compared to patients without an amphetamine-type stimulant use disorder diagnosis. The White House methamphetamine plan recommends expanding Extension for Community Healthcare Outcomes (ECHO) programs to provide more support to primary care practitioners in amphetamine-related cardiovascular disease.

Treatment of Stimulant Use Disorders

There is no FDA-approved medication treatment for stimulant use disorder. There is one main effective evidence-based treatment for stimulant use disorders called Contingency Management (CM). CM is a behavioral intervention that provides incentives for evidence of positive behavioral change. The evidence around CM shows effectiveness in treating a wide

variety of substance use disorders and other behavioral issues, such as addiction to gambling. CM helps people experiencing a lack of motivation to choose larger, delayed rewards over choosing small, immediate rewards. This process can retrain the brain to feel reward in abstinence.

There are many legal barriers to implementation of CM. Most notable is a criminal law against remuneration under the Anti-Kickback Statute. This law prevents knowingly and willfully offering, soliciting, or receiving reimbursement to induce or reward referral of business under any federal health care programs. The Beneficiary Inducement Statute also imposes penalties on health providers who offer remuneration to Medicare and Medicaid beneficiaries, claiming that this incentive-based strategy influences patients to use their services. Advocates of CM are working to address implementation challenges, such with as the Anti-Kickback and Beneficiary Inducement Statute, at the federal level.

Opportunities to Address Stimulant Misuse

Harm Reduction

Federal recommendations for stimulant harm reduction include expanding opioid response and recognition training to include acute psychostimulant intoxication recognition and response, and training stimulant users to recognize and respond to overdoses.^{xxxii} Providing fentanyl test strips to methamphetamine users is now recommended by the Federal Government.

Recommendations by the Federal Government also include that Syringe Exchange Programs carry supplies needed for safer methamphetamine injecting, smoking, and snorting and other sexual health supplies to protect users against transmittable diseases such as HIV, hepatitis C, and syphilis.^{xxxiii} Fentanyl test strips and Narcan are also recommended to be available to stimulant users.

The White House Plan to address methamphetamine use recommends that Syringe Exchange Programs design harm reduction programming for men who have sex with other men due to the higher prevalence of past year methamphetamine use in this population compared to heterosexual and bisexual males.

Prevention in the White House Plan to Address Methamphetamine

The White House plan to address methamphetamine states that prescription stimulant misuse in certain populations, such as sexual and gender minorities, is a risk factor for future illicit stimulant use, such as methamphetamine.^{xxxiv} Additional risk factors associated with substance use and the misuse of prescription stimulants from a SAMHSA Advisory can be found in Appendix B. (See Appendix B.)

The federal methamphetamine plan claims that many primary-prevention strategies can be adapted to prevent prescription stimulant misuse. Existing prescription opioid prevention strategies that can be adapted to prevent prescription stimulants misuse to prevent future illicit methamphetamine use and its related consequences include:

- educating prescribers and pharmacists on PMP checking for controlled psychostimulant prescriptions,
- informing youth on risks associated with prescription stimulant misuse,
- providing parental guidance on proper storage of controlled prescriptions of adolescent and youth patients,
- increasing community perceptions of the harms of prescription stimulant misuse and the harms associated with untreated mental health conditions,
- collecting baseline data about prescription stimulants and their misuse,
- ensure that school drug policies include guidance for study drugs and ADD/ADHD medication.

The White House Plan further calls for primary prevention strategies adapted to prevent prescription stimulant misuse to be scaled up through SAMHSA’s Tribal Opioid Response Grant and the State Opioid Response Grant programs.

Safer Supply Approaches to Preventing Fentanyl-Contaminated Stimulant Deaths

The global drug supply is experiencing an increase in adulteration of toxic, lethal substances. In 2020, amid a rapid increase in fentanyl-related death numbers during COVID-19, Canada outlined Risk Mitigation Guidelines for a Prescribed Safer Supply of benzodiazepines, opioids, and stimulants for drug users.^{xxxv} This is part of Canada’s efforts to address harms related to an illicit market that is contaminated with fentanyl.

A key component of the Safer Supply Plan is to provide drug users prescriptions for pharmaceutical-grade opioids, benzodiazepines, and stimulants. This Risk Mitigation Guideline builds upon the theory behind medication-assisted treatment program. Currently, in Canada, stimulant users can be prescribed ADHD medications (dextroamphetamine SR, methylphenidate IR, or methylphenidate SR) to reduce and prevent deaths related to adulterated stimulants.

Recent studies on populations receiving Safer Supply services under Canada’s Risk Mitigation Guidelines found that participants reported less risky behaviors around accessing their substance, reduced criminally sourced income, less illicit substance use, and reducing their overdose vulnerability by providing safe access to their preferred substance class at quantities agreed upon by prescribers and study participants.^{xxxvi} This Safer Supply approach to preventing fentanyl-contaminated methamphetamine deaths would require more research, high harm reduction readiness in multiple sectors, and massive cultural, legal, and healthcare policy changes. Despite the high barriers and limitations to this approach, it shows promising results in preliminary studies.

Endnotes

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- ^{vi} The White House, The Office of National Drug Control Policy (2022) *Plan To Address Methamphetamine, Supply, Use, and Consequences*
- ^{vii} Hale, Andrew C. PhD^{*,†,‡}; Bohnert, Kipling M. PhD^{*,‡}; Spencer, Robert J. PhD^{†,‡}; Ganoczy, Dara MPH^{*,‡}; Pfeiffer, Paul N. MD^{*,†,‡} The Prevalence and Incidence of Attention-deficit/Hyperactivity Disorder in the Veterans Health Administration From 2009 to 2016, *Medical Care*: March 2020 - Volume 58 - Issue 3 - p 273-279 doi: 10.1097/MLR.0000000000001287
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Appendix A: CNS Stimulant Family Tree

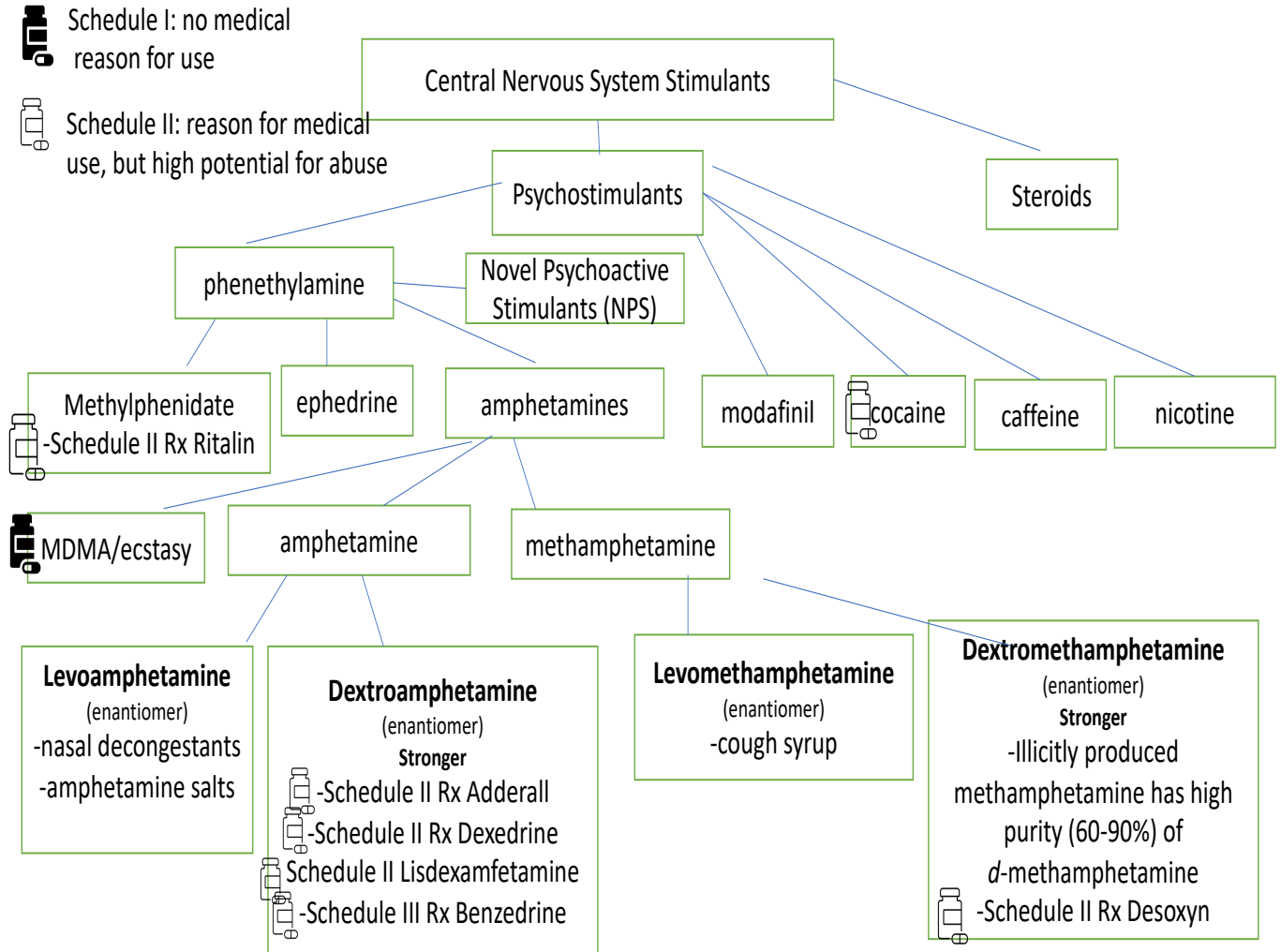


Image credit: Coop Consulting, Inc. 2022

Appendix B: SAMHSA



Figure 4. Risk Factors Associated with Substance Use and the Misuse of Prescription Stimulants Among Youth and Young Adults^{8,14,36,40-41}

Risk Factors			Protective Factors
For Substance Use/Rx Drug Misuse	For Rx Stimulant Misuse	For BOTH Substance Use/Rx Drug Misuse AND Rx Stimulant Misuse	
Individual			
<ul style="list-style-type: none"> History of sexual abuse 	<ul style="list-style-type: none"> Ages 18- 25 White Diagnosis of ADHD Older/higher grade level 	<ul style="list-style-type: none"> Mental health comorbidities (e.g., depression) Motivation for misuse Poor academic performance Other substance use history Engaging in other risk behaviors 	<ul style="list-style-type: none"> Commitment to education Four-year college degree Social coping skills
Family and Relationships			
<ul style="list-style-type: none"> Social isolation or antisocial behavior Family problems and/or conflict 	<ul style="list-style-type: none"> Household or family members as a source of prescription stimulants 	<ul style="list-style-type: none"> Lack of parental support or monitoring Negative parental attitudes Substance use by family members 	<ul style="list-style-type: none"> Parental disapproval of prescription drug misuse Stronger parental bond Parental supervision Family unity
Community and Peers			
<ul style="list-style-type: none"> Residing in neighborhoods where substance use is accepted Associating with peers accepting of substance use Lack of peer connections 	<ul style="list-style-type: none"> Friends as a source of prescription stimulants Prescription stimulants are easily accessible 	<ul style="list-style-type: none"> Substance use by peers Peers accepting of prescription drug misuse Greater prescription drug/stimulant misuse by peers 	<ul style="list-style-type: none"> Positive social activities Positive youth development/ afterschool activities
Societal and Cultural			
<ul style="list-style-type: none"> Norms favorable to substance use High availability of substances 	<ul style="list-style-type: none"> Pressure on academic achievement 		<ul style="list-style-type: none"> Norms against substance use