Treating Adolescent Substance Use

A Clinician's Guide

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Preface

Welcome to *The Clinician's Guide to Treating Adolescent Substance Use*. Clinicians are now facing new substance use-related challenges such as the opioid crisis, a changing political landscape regarding marijuana, and the emergence of new delivery devices such as e-cigarettes. This changing landscape of addiction impacts many adolescents and young adults. Unfortunately, we need significantly more clinicians who can offer developmentally informed treatment approaches for adolescents with substance use disorders. The inspiration for this book was not to add another textbook to the literature but to provide a useful clinical guide about the best practices for treating adolescent substance use disorders from medical, behavioral, and social standpoints.

This book is unique in that it is co-edited by a child/adolescent psychiatrist (Dr. Welsh) and a primary care pediatrician (Dr. Hadland), each with a subspecialty training in addiction. This combined background ensures that medicine and behavioral health will be integrated throughout the text. Dr. Welsh is the director of a multidisciplinary outpatient adolescent and young adult treatment service for individuals with problematic substance use at Emory University School of Medicine. In this role, she also provides training and education in adolescent substance use disorder treatment to child/adolescent psychiatry fellows, addiction psychiatry fellows, psychiatry residents, and psychology trainees. Dr. Hadland is a clinician-investigator who focuses his clinical work and research on addiction treatment for youth, and he also serves as an associate program director for the Boston Combined Residency Program in pediatrics, a role in which he incorporates teaching on addiction into general pediatric training.

As editors, we have selected experts from the field including Dr. John Rogers Knight, creator of CRAFFT, the most utilized screening tool for adolescent substance use; Dr. Mark D. Godley, co-developer of A-CRA, a widely used treatment manual for this population; Dr. Sharon Levy, senior author of several substance use-related policy statements for the American Academy of Pediatrics; and Dr. Nancy Rappaport, who has nearly two decades of experience as a school consultant through Harvard Medical School. Throughout the text, we aim to discuss the prevalence of substance use among adolescents and young adults, prevention strategies,

available screening methods, as well as practical treatment applications and their outcomes. Furthermore, we offer practical explanations of the differences between inpatient and outpatient treatment and strategies for coordinating care between the health-care system and the broader community. Finally, we have included an appendix of cases to demonstrate how to implement these practices in real-world settings.

We would like to take the time to acknowledge our developmental editor, Michael Wilt, for his dedication to this piece, as well as our families for their support and patience. We hope you enjoy this guide. Thank you for being part of our audience and for providing care to this underserved population of youth!

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Part I
Introduction

Chapter 1
Epidemiology and Historical Drug Use Patterns

Scott E. Hadland

Introduction

There is cause for both optimism and concern regarding recent trends in adolescent substance use. Use of most substances among adolescents has declined substantially over the last two decades (Fig. 1.1). Use of traditional cigarettes, a well-established risk factor for cardiovascular disease, stroke, pulmonary disease, and cancer, has declined to historically low levels [1]. Alcohol use, a primary contributor to the top three causes of death among adolescents—motor vehicle crash deaths, suicide, and homicide—and a precursor to lifelong health and psychosocial consequences, has also continued an unprecedented decline [2–4]. Even the more recent concern of opioid misuse reached a peak in 2009, but has dropped steadily since then [5].

However, despite these clear improvements in the epidemiology of adolescent substance use, significant concerns remain, and new challenges have arisen. The threat of traditional cigarettes has been replaced to some extent by the rising popularity of electronic cigarettes ("e-cigarettes") and vaping, which have been shown to contain many of the same carcinogens—albeit at lower concentrations—than traditional cigarettes [6]. Data demonstrates that e-cigarettes may also be a gateway to subsequent traditional cigarette use [7]. Despite declines in alcohol use, substantial disparities exist by race and socioeconomic status, with improvements in heavy drinking patterns among black and economically disadvantaged adolescents less pronounced than among other adolescents [2, 3, 5]. Although the prevalence of "any" and "past-year" use of opioids has declined among the general population of adolescents, there is clearly a subset of youth using opioids at increasing risk as

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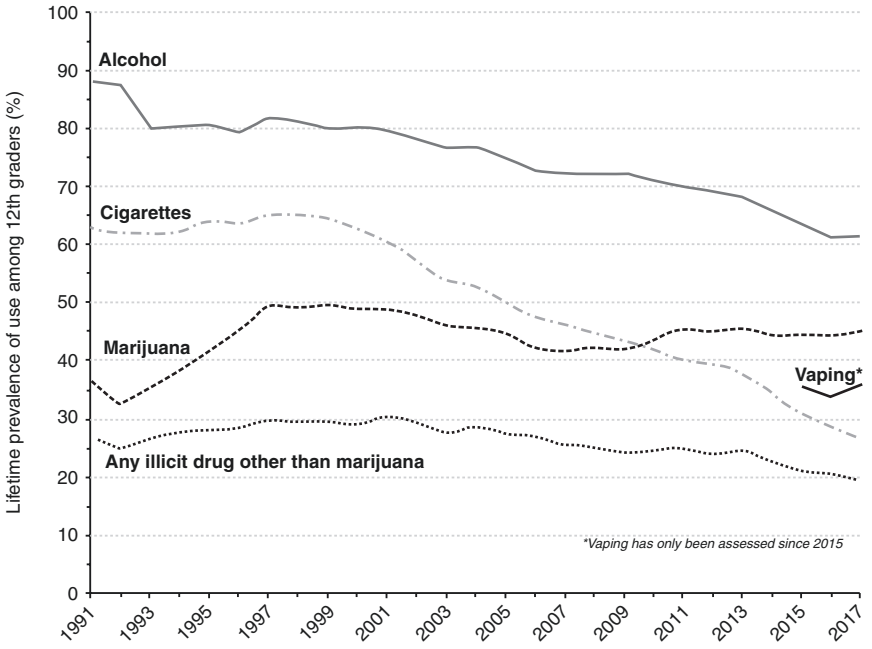

Fig. 1.1 Trends in use of common substances in the general adolescent population in the United States. (Data source: Johnston et al. [5] p. 54–5)

evidenced by rising overdose mortality, hospitalizations for overdoses, and diagnoses of opioid use disorder [8–10]. Finally, whereas the prevalence of use for almost every substance surveyed among adolescents has declined, marijuana use—including heavy use—has risen in recent years amidst a changing policy landscape that has favored legalization of recreational marijuana [5].

Since nine out of every ten adults with a substance use disorder first used substances before the age of 18, clinicians caring for adolescents are at the front line of early detection of and intervention in substance use [11]. The purpose of this chapter is to give a brief overview of the major substances of concern for adolescents and historical and recent epidemiologic trends in their use. This review of critical epidemiology will set the stage for subsequent chapters in which readers will better understand developmental concerns related to adolescent substance use, screening, treatment, prevention, and recovery. After a brief review of the national surveys used in the United States to track substance use in the general adolescent population, this chapter will review recent and historical trends in use of alcohol, marijuana, nicotine, opioids, and other substances.

Table 1.1 National surveys of substance use among the general adolescent population in the United States

	Monitoring the Future	Youth Risk Behavior Surveillance System	National Survey on Drug Use and Health
Organization	University of Michigan Institute for Social Research, National Institute on Drug Abuse	Centers for Disease Control and Prevention	RTI International, Substance Abuse and Mental Health Services Administration
Sampling	School-based	School-based	Household-based
Population	8th, 10th, and 12th graders	9th, 10th, 11th, and 12th graders	12 years and older (also includes adults)
Number sampled	50,000	Approximately 15,000 (varies)	70,000
Years available	1975 to present	1991 to present	1971 to present
Frequency of survey	Yearly	Every other year on odd-numbered years	Yearly
Sample omissions	Excludes youth not present on day of survey	Excludes youth not present on day of survey	May exclude homeless youth

Adolescent Substance Use Surveys

In the United States, three national surveys of the general adolescent population track trends in substance use over time (Table 1.1). These three surveys include Monitoring the Future (MTF), the Youth Risk Behavior Surveillance System (YRBSS), and the National Survey on Drug Use and Health (NSDUH) [5, 12, 13]. The first two of these, MTF and YRBSS, are school-based surveys of 8th, 10th, and 12th graders and 9th through 12th graders, respectively; the third, the NSDUH, is a household-based survey of 12–17-year-olds. Because of these sampling approaches, adolescents absent from school on the day of the survey or who are homeless are not included in the studies' findings; notably, these adolescents may have elevated rates of alcohol or other substance use [14].

In addition to providing nationally representative data on alcohol and drug use among adolescents, these three surveys contain other questions that are helpful in understanding the broader context of adolescent substance use. MTF goes into substantial depth to highlight how frequent and recent an adolescent's drug use is and also probes perceived harmfulness of use, disapproval of use, and availability of substances [5]. Due to the richness of substance-specific data and its yearly administration, this chapter relies largely on MTF estimates of adolescent substance use prevalence.

YRBSS has fewer questions devoted solely to substance use, but asks adolescents about sexual behaviors, human immunodeficiency virus (HIV) and sexually transmitted disease prevention, pregnancy prevention, behaviors associated with violence and unintentional injury, diet and physical activity, and depression and suicide-related behaviors [13]. The NSDUH explores co-occurring mental ill-

ness, as well as receipt of substance use treatment mental health services. Thus, each survey allows clinicians, researchers, and policies to examine critical indicators related to substance use in order to shape clinical practice, public health, and policy.

Internationally, similar surveys—sometimes including exactly the same questions—exist in other countries to tabulate substance use in the general adolescent population. For example, the Canadian Tobacco, Alcohol and Drugs Survey (CTADS), as well as a series of provincial surveys analogous to YRBSS, tracks adolescent substance use in Canada [15]. A similar survey exists in the United Kingdom [16]. Readers should become familiar with what data are available in their own country in order to understand current trends in adolescent substance use. Additionally, in the United States and elsewhere, data on substance use and its associated morbidity and mortality is not limited to information from national surveys; a number of insurance- and hospital-based claims databases also provide critical information on trends in substance use-related admissions, discharges, and treatment services across the country (e.g., see Ref. [11]).

Epidemiology and Historical Patterns of Substance Use

Alcohol

Alcohol is, and historically has been, the most commonly used substance among adolescents [5, 12, 13]. Nonetheless, use has steadily declined over several decades, such that in 2017, the percentage of 8th, 10th, and 12th graders reporting past-30-day use of alcohol was 8%, 20%, and 33%, respectively [5]. Binge drinking, defined as five or more drinks on a single occasion, is associated with serious physical and mental health outcomes [17] and has also steadily declined after reaching a peak in the late 1970s [5]. Traditionally, whereas adolescent males have demonstrated a much higher prevalence of binge drinking than females, males have also experienced a faster recent decline in binge drinking, such that sex differences have become substantially less pronounced in recent years [2, 3, 5].

Declines in binge drinking may not have been uniform by race or socioeconomic status either. Since 2007, the decline in "frequent heavy drinking" (defined as at least two occasions of binge drinking in the past 2 weeks) has declined more rapidly among white adolescents than black adolescents, even after accounting for other potentially confounding factors [2, 3, 5]. Adolescents with lower socioeconomic status (i.e., higher poverty) have similarly experienced slower declines in heavy frequent drinking than youth with higher socioeconomic status (i.e., lower poverty).

Reducing the prevalence of binge drinking—and of alcohol use more generally—among adolescents is critical due to immediate and downstream consequences of use. The top three causes of death among adolescents in the United States are unintentional injury (the majority of which are caused by motor vehicle crashes [MVC]), homicide, and suicide [18]. Alcohol use clearly contributes to all three,

with alcohol implicated in nearly half of all male MVC deaths and one-third of all female MVC deaths, half of all homicide deaths among both sexes, and one-quarter of all suicide deaths among both sexes [19, 20].

In the long term, adolescent alcohol consumption is a strong predictor of progression to heavy drinking and/or development of an alcohol use disorder during adulthood [21], which is in turn associated with adverse health outcomes including alcoholic liver disease and cirrhosis, multiple forms of cancer, stroke, hypertension, pancreatitis, cardiomyopathy, and numerous other health conditions [19]. There are also clear links between heavy alcohol use and short- and long-term adverse mental health and psychosocial outcomes, including mood and anxiety disorders, poor school and work performance, and problems with family members [21].

Marijuana

Whereas use of most substances, including alcohol, has steadily declined since the 1990s, marijuana use has remained relatively constant or increased among US adolescents [5]. Across high school students surveyed in MTF, past-year use has leveled or increased leading up to 2017, such that currently, 24%, or nearly one in four high school students (grades 8, 10, and 12 combined), report past-year use of marijuana. Daily use of marijuana is highest among 12th graders, with 5.9% or approximately 1 in 17 reporting daily use.

The persistently high prevalence of marijuana use among adolescents may be related to the rapidly changing policy landscape in the United States. As of mid-2018, eight states had legalized marijuana for recreational purposes for adults, many of them passed by ballot measures brought directly to voters in 2012, 2014, and 2016 [22]. Marijuana is legalized for medicinal purposes (if certified by a physician) in 30 states and the District of Columbia. Finally, possession of small amounts of marijuana (typically less than 1–2 ounces) has been decriminalized in 22 states and the District of Columbia, meaning that possession of small amounts of marijuana (typically less than 1–2 ounces) is typically a civil infraction, rather than a state crime for most adults.

Whether laws legalizing marijuana for recreational or medicinal purposes have contributed to increasing marijuana use (or prevented a decline that might have otherwise occurred) among adolescents has been subject to numerous studies. In Washington State, self-reported past-month marijuana use increased among 8th and 10th graders after marijuana was legalized for recreational purposes; in Colorado, there was no observed difference after implementation of its law [23]. A systematic review of studies examining the impact of medical marijuana laws did not show any change in the prevalence of adolescent marijuana use across states that had implemented such policies [24].

What is clear, however, is that adolescent perceptions of marijuana as a harmful substance are declining [5, 23], regardless of the underlying cause. As the percentage of adolescents viewing harm in regular use of marijuana has declined, the percentage reporting recent daily use of marijuana has increased in lockstep (Fig. 1.2). Clinicians should be aware of these relaxing perceptions of harm and ensure that