

Medical Comorbidity and Complications



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KEYWORDS

- Adolescents • Chronic disease • Substance-related disorders • Ethanol
- Street drugs • Tobacco products • Electronic cigarettes

KEY POINTS

- A substantial proportion of youth with chronic medical conditions (YCMC) use substances, including cigarettes (traditional and smokeless products such as e-cigarettes), alcohol, and illicit drugs, and also may engage in nonmedical use of prescription drugs.
- Substance use has direct harms for all youth, but YCMC may be at even higher risk for harm owing to clinically significant disease-substance interactions as well as medication nonadherence and poor disease management in the setting of substance use.
- It is incumbent on all clinicians, primary care providers, specialty providers, and behavioral health specialists, to screen for substance use, briefly intervene, and refer to treatment as appropriate.

To date, the wealth of observational studies on youth substance use has focused on the general adolescent population, which comprises predominantly healthy youth. As established in previous articles, alcohol use and drug use are associated with a wide range of adverse health effects and neurocognitive changes for all adolescents. Less studied, however, are the *additional* potential consequences for youth with chronic medical conditions (YCMC) who use substances. There has been almost no

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systematic epidemiologic examination of substance use among YCMC, thus constituting an enormous knowledge gap. Because alcohol and drugs have widespread and potentially harmful physiologic effects throughout the body, the potential for organ systems to sustain a “double hit, both from chronic illness and from substance use, is high.

This article reviews (1) the epidemiology of substance use among YCMC, (2) mechanisms whereby substances might alter the course of illness for YCMC, and (3) recommendations for routine health care and medical screening for all adolescents who use substances, with special consideration for YCMC. Using case examples, some special considerations are also presented for YCMC with regard to the substances they use and potential disease-specific concerns (**Boxes 1–3**).

EPIDEMIOLOGY OF SUBSTANCE USE AMONG YOUTH WITH CHRONIC MEDICAL CONDITIONS

Despite readily available information on drug and alcohol use among the general adolescent population (eg, Refs.^{1–3}), there have been no similarly rigorous, large-scale, systematic epidemiologic studies of substance use among YCMC. Because at least 1 in 10 of adolescents lives with identified chronic conditions, there is urgent need for further study.^{4,5} Data on substance use are available from smaller samples of YCMC, but data are increasingly outdated and do not capture more recent trends (eg, the emergence of e-cigarette use and of synthetic cannabinoids¹).

Fortunately, data from small studies are available from multiple settings worldwide, but findings from one country do not necessarily generalize to other locations. In addition, there has been no systematic comparison across different illnesses: for example, comparing youth with asthma to youth with type 1 diabetes mellitus (T1DM) or to youth with inflammatory bowel disease (IBD), to help understand the interplay between different illness experiences and substance use. Finally, most samples are clinic-based, which exclude YCMC who are not actively receiving medical care and may have poorer disease control; although this has not been studied, these same youth may be more likely to use substances and experience related harm.

Many studies conducted to date have demonstrated comparable or even slightly lower prevalence of lifetime or recent drug, alcohol, or tobacco use among YCMC.^{6–9} However, as outlined in later discussion, there have also been documented notable exceptions to this, particularly among adolescents with asthma,^{10–12} suggesting that there may be critical differences among different chronic medical conditions. In addition, what is clear from studies to date is that even when the prevalence of substance use is lower among YCMC, there remains a substantial number of youth who do use substances, thus necessitating careful screening by all health care providers for alcohol, tobacco, and drug use, and their associated harms.

Asthma

No large-scale epidemiologic studies provide stable estimates of the proportion of youth with asthma who smoke cigarettes or use alcohol or other drugs, although several studies have suggested that cigarette smoking and other substance use may be higher among youth with asthma than without.^{10–12} Reasons for this remain unclear. One national survey of adolescents recruited from schools (rather than from clinics) demonstrated that adolescents with asthma were significantly more likely to smoke cigarettes daily and smoked more cigarettes per day on average.¹¹ However, the investigators also found that adolescents with asthma were more likely to have started smoking at a younger age, which raises the question of whether their

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