

# Addressing Teenage Tobacco Use: Still an Urgent Issue for Pediatricians

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Smoking is a pediatric disease that usually originates during adolescence, with 90% of adult smokers beginning to smoke before age 18.<sup>1</sup> Every day, nearly 200 youth under age 18 become regular cigarette smokers.<sup>2</sup> Adolescents' brains are uniquely susceptible to nicotine addiction, and youth become addicted far more quickly than they realize.<sup>3,4</sup> The US Preventive Services Task Force, which recently reassessed the evidence supporting youth-focused tobacco prevention and cessation efforts, continues to recommend that primary care clinicians provide interventions to prevent initiation of tobacco use among school-aged children and adolescents.<sup>5</sup> However, the Task Force identified key gaps in our knowledge about how to intervene once teenagers have already become smokers.<sup>5</sup> In this issue of *Pediatrics*, Klein et al<sup>6</sup> describe an office-based intervention that could help address this.

The investigators trained 120 clinicians in an intervention for smoking cessation based on the "5As" or in a control intervention (social media counseling). The 5As are the foundation for a brief intervention demonstrated to be effective for adults and include the following components: ask about tobacco use, advise to quit, assess willingness to make a quit attempt, assist those willing to attempt, and arrange follow-up.<sup>7</sup> Almost 11 000 adolescents were enrolled between January 2012 and December 2014, including 936 self-identified smokers. Not surprisingly, clinicians trained in the 5As were more likely to screen for

smoking, assess quit readiness, and provide resources to quit.

The results of the trial, however, are somewhat disappointing. At 6 months, receipt of counseling did not affect motivation to quit. Surprisingly, smokers receiving counseling were more likely to report smoking in the past 30 days at this follow-up. Receipt of screening and counseling, regardless of study arm, did not affect motivation to quit. After adjusting for study arm assignment, demographics, receipt of counseling, addiction, and clinician behaviors, the only predictors of successful quitting were a lower addiction score and younger age. At 12 months, the results were similar. Those who received counseling, regardless of study arm, were more likely to have smoked in the past 30 days before the 12-month follow-up. There was, however, at 12 months, the suggestion of a delayed effect of being in the intervention arm. After adjusting for confounders, adolescents whose clinicians were in the intervention arm or who were female were more likely to quit. In addition, adolescents who were more addicted were less likely to quit.

Although this study did not find clear positive results for the 5As intervention, it does suggest a path forward for clinicians. The investigators demonstrated that clinicians can consistently provide screening, counseling, and resources for adolescents to help them quit smoking. Successful clinician training is necessary but not sufficient to reduce adolescent smoking.

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This study reinforces the concept that youth who are more addicted to nicotine are less likely to quit smoking. The intervention did not include nicotine replacement therapy. Currently, there is no evidence supporting the effectiveness of using nicotine replacement therapy in teenagers, but studies have been underpowered, perhaps because of difficulties recruiting and retaining adolescents. Since this study was initiated, a more urgent problem has emerged: the explosion of teenage electronic cigarette use and resulting nicotine addiction, with 27.5% of US middle- and high school students reporting past 30-day use.<sup>8</sup> We believe there is a crucial need for research in pharmacologic treatment of nicotine-addicted teenagers.

At the same time, more innovative approaches to promoting tobacco and nicotine cessation within primary care are needed. For example, Web sites or apps that extend the reach of primary care might be helpful. These approaches have been successfully used in skin cancer prevention<sup>9,10</sup> and should be studied within the context of adolescent tobacco cessation.

Accelerating the pace of cessation research becomes an imperative given recently described health issues: electronic cigarette or vaping use-associated lung injury<sup>11</sup> and coronavirus disease (COVID-19). Smokers face a greater risk of COVID-19, in part because of hand-mouth behavior inherent to smoking. Among adult patients with COVID-19, smoking is a risk factor for increased severity of disease.<sup>12</sup>

Amid the tragic COVID-19 pandemic, with >164 000 American deaths as

we write, we must also remember that tobacco use kills 480 000 Americans yearly. Teenage smokers who do not quit face morbidity and premature death. Current epidemics suggest that smoking also poses immediate hazards. Pediatricians and other clinicians will continue to care for teenagers, either in person or through telehealth. We must continue to develop and evaluate the best approaches to treating teenage tobacco users to ensure that they enter adulthood free of nicotine addiction.

#### ABBREVIATION

COVID-19: coronavirus disease

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