

Smoking Among Childhood Cancer Survivors: We Can Do Better

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The past several decades have brought unparalleled success in the treatment of childhood cancers, in many cases rendering once-fatal diseases curable. Along with these remarkable achievements has been an increased emphasis on survivorship and the late effects experienced following treatment. Although the specific types of health issues experienced later in life by childhood cancer survivors vary considerably by cancer type and treatment, recent work has shown that, compared with the general population, these survivors have increased risks of developing cardiovascular disease by early adulthood (1), a subsequent or second primary cancer, and pulmonary complications (2). Thus, it is important to minimize survivors' exposures to factors that might further increase the risks for these late effects. Smoking is a major cause of cardiovascular and pulmonary disease in the general population, and survivors of childhood cancer who smoke, especially those who have had cardiopulmonary toxic treatments, are at increased risks of developing these diseases.

In this issue of the *Journal*, Frobisher et al. (3) present the prevalence of smoking among almost 15 000 childhood cancer survivors who are part of the British Childhood Cancer Survivor Study. They report that almost 30% of the survivors were ever smokers and 20% were current smokers. The good news is that this smoking prevalence is lower than that found among the general British population. These findings are remarkably similar to the findings from the US Childhood Cancer Survivor Study, in which 28% of survivors were ever smokers and 17% were current smokers (4). The methodologies, definitions of survivorship, and eligibility criteria of these two large cohorts are very similar. Thus, together these two studies suggest that regardless of the different health care systems and very different national approaches to tobacco control in Britain and the United States, almost one-third of the childhood cancer survivors in each country become a smoker at some point and about one-fifth continue to smoke. The bad news, of course, is that even at a smoking rate of only 20%, the thousands of childhood cancer survivors who do smoke are increasing their risk of having a poor outcome. The fact that a preventable risk factor—smoking—may exacerbate late effects of cancer and its treatment and negatively affect long-term survival in the context of a once-fatal disease is disheartening. The goal from both oncology and public health perspectives should be for no childhood cancer survivors to smoke. It is indeed tragic for those who survive one cancer to be put at risk for other life-threatening diseases as a result of smoking. Particularly distressing is that both the British and US studies found that social factors are key predictors of smoking among childhood cancer survivors, reflecting trends in the general population of both countries (5,6). In both cohorts, survivors who had lower incomes and less education were more likely to smoke. Given the extensive interactions with the health care system that survivors have had, it is disappointing, although perhaps not surprising, that they have not escaped the persistent impact that

social disadvantage (eg, lower income and education) has on smoking prevalence.

Graham et al. (7) have eloquently reviewed the ways in which social disadvantage shapes smoking status. Several studies have demonstrated that having a low socioeconomic background increases the likelihood of smoking as an adult and decreases the likelihood of quitting, even after adjustment for adult socioeconomic status (SES) and other potential moderators of the relationship between SES and smoking (8,9). Graham et al. (7) have suggested that if we are to have a meaningful impact on smoking prevalence, we need to move beyond a focus on smoking cessation interventions and consider social policies that will improve socioeconomic and general living conditions in childhood. They note that the relative economic and social position of disadvantaged smokers has worsened over the past three decades, due in part to sharp increases in the proportions of children living in poverty in the United States and the United Kingdom and the widening of inequalities of living standards in adulthood. If we are to have a meaningful impact on smoking prevalence among young adults who have survived cancer as well as in the population as a whole, it is likely that we will have to be more serious about addressing the social conditions that lead to social disadvantage and, ultimately, increase likelihood of becoming a smoker.

At the same time, we need to look at other influential factors and consider whether their potential impact on smoking is being realized. For example, there is substantial room for improvement in the role of the health care system for promoting smoking cessation in the general population. Despite extensive efforts to develop guidelines for providing smoking cessation treatment in the context of health care delivery (10), national survey data in the United States indicate that smoking status is assessed at less than 70% of health care visits and counseling is provided at only 20% of visits, representing a slight decline from the previous 5 years (11). British data suggest a similar rate of counseling by UK providers and that less than 3% of patients in the United Kingdom report having had a discussion about pharmacotherapy for smoking cessation with their health care provider (12). The only study of smoking cessation services available in long-term cancer survivorship treatment programs indicated that although 85% of the programs assessed patients' smoking status at least once, only 3% assessed smoking status at every visit, as recommended in the Clinical Practice Guidelines for Treating Tobacco use and

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DOI: 10.1093/jnci/djn242

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Dependence (13). Less than 40% of cancer survivorship programs offer smoking prevention programs and only 25% offer smoking cessation services. These limited efforts to address a major preventable health risk for childhood cancer survivors occurred among providers who were largely supportive of smoking prevention and smoking cessation among cancer survivors. In a comment on the recently updated Clinical Practice Guidelines, Fiore and Jaen (14) note that a major obstacle to greater reductions in tobacco use is that clinicians do not consistently provide smoking cessation treatments. They note that, given the presence of cost-effective interventions for a very serious health threat, the relatively low level of intervention offered by clinicians reflects an “unprecedented mix of lethality, prevalence, and neglect.”

Why is it so difficult for the health care system to embrace tobacco control for childhood cancer survivors when the health hazards are so clear and the preexisting vulnerabilities of the survivors so extensive? Perhaps it is the long-standing emphasis on curing disease that is inherent in much of medical training and the organization of the health care system. Or perhaps it reflects an unconscious or inadvertent acceptance by the medical community of smoking as a choice, despite the substantial evidence to the contrary. Alternatively, perhaps it reflects a “glass half-full” optimism that only 20% of survivors smoke. A more pessimistic view would place the health risks facing the thousands of individuals who make up that 20% in the context of the extensive efforts that are made by treatment teams, families, and the survivors themselves to overcome the diagnosis of cancer during childhood. A more daunting challenge may be that of addressing the social disadvantage that is associated with smoking. It is hoped that the recent increased emphasis in the United States and the United Kingdom on both addressing social disadvantage and understanding factors that increase dissemination of evidence-based interventions in health care and other settings (15,16) will lead to a much more optimistic future—one in which we are addressing all points along the pathway to tobacco use among this particularly vulnerable population of cancer survivors. Gone are the days when we should be focused on finding one intervention or drug that will yield high rates of long-term smoking cessation. It is time to think well beyond our disciplinary boundaries and implement interventions that we know are efficacious, such as provider-delivered counseling and pharmacotherapy, and seek solutions for the social conditions that serve as a trajectory for a lifetime of smoking.

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