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## Should Clinicians Encourage Smoking Cessation for Every Patient Who Smokes?

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When a treatment recommendation is promulgated for a certain condition, clinicians must ask whether the recommendation should be applied to all patients or whether there are some patients for whom the treatment should be withheld or modified. Two articles in this issue of JAMA<sup>1,2</sup> address this question with regard to tobacco use: should some smokers *not* be encouraged and helped to quit? This is an important issue because about half of all smokers will die prematurely from a disease that is directly caused by their smoking.<sup>3</sup> Thus, withholding smoking cessation treatment may have serious consequences.

Quitting smoking is arguably the most important step that smokers can take to improve their health and prevent premature death. Smoking cessation greatly reduces the risk of multiple types of cancer, cardiovascular disease (CVD) and chronic obstructive pulmonary disease (COPD) complications and has other health benefits such as improved wound healing and reduced risk of hip fractures and cataracts.<sup>4</sup> Physicians can deliver brief, evidence-based treatments that double or triple their patients' success at quitting,<sup>5,6</sup> making the delivery of smoking cessation therapies one of the most beneficial actions a clinician can take to improve the health of their patients who smoke. But is there an identifiable group of smokers for whom cessation is ill advised?

Obesity has emerged over the past two decades as a major preventable cause of excess mortality and morbidity in developed countries, including the United States.<sup>7</sup> Obesity is significantly related to higher rates of chronic health conditions such as diabetes, hypertension, hyperlipidemia, coronary heart disease, arthritis, and certain types of cancer.<sup>8</sup> Concern about excess body weight has been amplified by the increase in the prevalence of obesity during the last few decades, with prevalence rates exceeding 30 percent in most age and sex groups.<sup>7</sup> This has led to concern about one of the few common negative effects of quitting smoking: cessation-related weight gain, which occurs in about 80 percent of quitters.<sup>9,10</sup> Smoking cessation can lead to significant weight gain, with the average increase across studies and samples typically ranging from 4 to 5 kg over 12 months<sup>10</sup> raising

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concern that such weight gain could blunt or counter the health benefits of smoking cessation.

The study by Clair and colleagues<sup>1</sup> in this issue of JAMA addresses this issue. The authors reasoned that if cessation-related weight gain produces serious negative health effects, such effects would likely manifest in adverse cardiovascular disease outcomes, given the observed relations between obesity and such complications as hypertension and hyperlipidemia. The authors examined the relation between smoking status and CVD events (coronary heart disease, cerebrovascular events, peripheral artery disease and congestive heart failure) among 3251 adults in the prospective community-based Framingham Offspring Study from 1984 through 2011. The authors also determined whether the magnitude of association between smoking status and CVD events was related to cessation-related weight change or type 2 diabetes.

The results showed that the incidence rate of CVD events was significantly higher for continuing smokers (5.89 per 100 person examinations) than for recent quitters, long-term quitters, and nonsmokers (with incidence rates ranging from 2.43 to 3.22 per hundred person examinations). The pattern of association was largely independent of weight changes and diabetes diagnosis. This research confirms the association between quitting smoking and reduced risk of CVD, regardless of any associated weight gain.

Notable strengths of this study are that clinical CVD outcomes were used rather than biomarkers, the sample was recent (reflecting the higher body weights of contemporary smokers and nonsmokers) and the relations between smoking and CVD were modeled in several complementary ways. However, Clair et al did not report biochemical measures of smoking; this would have provided additional assurance of smoking status and more accurate assessment of the amount of smoking. This is important because precessation smoking amounts have been found to predict relevant postcessation outcomes such as the development of diabetes.<sup>8</sup> Also, the study did not focus on the effect of especially large weight gains. In part, this is because quitters in the Framingham sample tended to gain less weight over the 4 year assessment windows than has often been reported,<sup>11</sup> meaning that the full variation in weight gain may not have been statistically modeled. Specifically, the study population was not sufficiently large to test relations in the 10 to 15 percent of smokers who gain more than 10 kg during their quit attempts, especially among persons with diabetes.<sup>10,11</sup> The effects of weight gain on CVD may be nonlinear, concentrated in persons who both weighed the most precessation and then gained the most after quitting. However, overall, the study supports the belief that smoking cessation is beneficial for smokers and no subpopulation has yet been identified that shows significantly reduced benefit from quitting, let alone harm.

The Viewpoint by Khullar and colleagues<sup>2</sup> in this issue of JAMA addresses whether smokers should be encouraged to quit around the time of surgery. There is a longstanding concern that quitting smoking just before surgery may lead to postoperative pulmonary complications—a conclusion unsupported by the literature<sup>12</sup> but mentioned in anesthesiology textbooks.<sup>13</sup> The Viewpoint addresses this issue, emphasizing the importance of seizing the preoperative period as a teachable moment for smoking cessation

interventions, including information about the feasibility of such preoperative interventions.<sup>14</sup>

The two articles in this issue of JAMA can be used by physicians in at least two ways. First, data from the study by Clair et al<sup>1</sup> can be used to reassure patients concerned about the health effects of cessation-related weight gain. About 50 percent of female smokers and 25 percent of male smokers are “weight-concerned”, which may discourage quit attempts and quitting success.<sup>15</sup> Although such reassurance may not assuage concerns about the effects of weight gain on appearance, it may nevertheless be helpful. Furthermore, even though no treatments have been shown to reliably prevent cessation-related weight gain, exercise regimens may be beneficial,<sup>9</sup> and use of nicotine replacement medications can suppress weight gain during their use.<sup>6</sup>

Second, physicians should use this information to reinforce their commitment to provide or arrange evidence-based treatment for all of their patients who smoke. The most important message of these articles is that every smoker should be encouraged to quit smoking and given support to do so.

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