

## Measuring the Health Impact of Smoking and Health Care Providers' Performance in Addressing the Problem

In the preface to the 1990 U.S. Surgeon General's report on the health benefits of smoking cessation, U.S. Surgeon General Antonia C. Novello stated that "smoking represents the most extensively documented cause of disease ever investigated in the history of biomedical research" (1). Since then, the evidence on the dangers of smoking has continued to grow, and U.S. Surgeon General Richard H. Carmona issued a 941-page report in 2004 that summarized the voluminous literature on the myriad ways in which smoking affects every organ system in the body (2).

One might question whether more research on the health effects of smoking is still needed and whether this research funding should be redirected to studies focusing on smoking behavior and strategies to prevent or treat tobacco use and dependence. However, research on the health effects of tobacco use continues to provide value by elucidating the etiology of disease, identifying previously unknown associations between smoking and disease (acute myelogenous leukemia is a relatively recent example), providing new information for tobacco education campaigns, informing the development of sound public policy on tobacco, and further defining the effect of smoking on population subgroups (3).

In this issue, Vollset and colleagues' article (4) improves our understanding of the effect of smoking in persons of middle age (40 to 70 years of age). The authors conducted a population-based study of 24 505 women and 25 034 men who resided in 3 counties in Norway and were born between 1925 and 1941. The investigators found that among these women and men, 26% and 41%, respectively, of continuing heavy smokers ( $\geq 20$  cigarettes per day) died in middle age, compared with 9% and 14%, respectively, of never smokers.

The complete follow-up of mortality among this large cohort of women and men over a 25-year period was a strength of the study. A limitation of the study, as noted by the authors, was the incomplete updating of smoking histories; however, any resulting misclassification of smoking status probably reduced the estimated effect of smoking on mortality.

The survival curves constructed by Vollset and colleagues provide a powerful graphic representation of the huge effect of smoking on mortality risk in middle age among women and men. They nicely demonstrate the dose-response relationship between smoking and mortality—survival decreases with increasing daily cigarette consumption. They also show the health benefits of smoking cessation—the disparity in survival between continuing smokers and former smokers increases in magnitude as the duration of smoking (or smoking abstinence) increases. Using similar data from the American Cancer Society's

Cancer Prevention Study II, a tool on the National Cancer Institute's Web site (5) allows current and former smokers to construct personalized survival curves so they can easily visualize the effects of smoking and quitting on their own probability of death from lung cancer or all causes.

Vollset and colleagues found that the detrimental effect of smoking is greatest at earlier ages of smoking initiation in each of 3 categories of daily cigarette consumption. Underlying reasons for this finding may be the longer duration of smoking among those who begin to smoke at younger ages, the possibility that age of smoking onset is an independent risk factor for death from smoking-related diseases, and the association between early age of smoking initiation and other unhealthy behaviors (2, 6). Whatever the explanation, these data reinforce the need to target smoking prevention efforts at younger adolescents and pre-adolescents. Postponing smoking initiation among young persons is a positive outcome, even in the absence of permanent tobacco abstinence. Delaying smoking onset among adolescents provides 2 benefits: 1) It reduces the likelihood of them becoming long-term, dependent smokers (6, 7), and 2) if they do become long-term smokers, it may reduce their risk for premature death.

The Norwegian data showed that the benefits of smoking cessation were stronger for those who quit at younger ages (<40 years and 40 to 49 years of age). Nevertheless, the beneficial effect of quitting smoking was also evident for those quitting at older ages (50 to 59 years of age). These data support the public health message that "it's never too late to quit" and the expansion of smoking cessation and tobacco control activities aimed at older persons (8, 9). New Medicare benefits that cover tobacco cessation counseling (10) and prescription medications for smoking cessation through Medicare Part D should improve seniors' access to tobacco cessation services.

Evidence-based clinical practice guidelines exist for the treatment of tobacco use and dependence (11). Performance measures have been developed for the delivery of tobacco cessation services by health plans, hospitals, and physicians, and they reveal opportunities for substantial improvement. The Health Plan Employer Data and Information Set (HEDIS), which is used to measure performance among managed health care plans, includes 3 measures for medical assistance with smoking cessation—advising smokers to quit, discussing smoking cessation medications with smokers, and discussing smoking cessation strategies with smokers (12). Among health plans reporting HEDIS data for 2004 to the National Committee for Quality Assurance, the proportions of smokers and recent quitters who received advice to quit from their practitioner were 69.6%, 64.7%, and 66.9% for commercial,

Medicare, and Medicaid plans, respectively. The proportions of smokers and recent quitters whose practitioner discussed cessation medications were 37.8% and 31.5% for commercial and Medicaid plans, respectively. The proportions of smokers and recent quitters whose practitioner discussed cessation strategies were 36.9% and 33.0% for commercial and Medicaid plans, respectively (12).

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has developed hospital performance measure sets for acute myocardial infarction, heart failure, and pneumonia, each of which includes a measure for smoking cessation advice or counseling. The measure assesses the proportion of patients with a history of smoking during the past year who received smoking cessation advice or counseling during their hospital stay (13). The proportions of patients in participating hospitals who received cessation counseling increased from the third quarter of 2002 to the second quarter of 2004: from 65% to 84% for patients with acute myocardial infarction, from 39% to 72% for patients with heart failure, and from 34% to 67% for patients with pneumonia (14). These impressive gains would seem to validate the value of performance measurement, but there is still room for continued improvement.

The Physician Consortium for Performance Improvement, convened by the American Medical Association and representing more than 70 national medical specialty societies, state medical societies, federal agencies, and other health organizations, develops evidence-based clinical performance measures for physicians (15). The Consortium has developed a measurement set for preventive care and screening, which includes 2 measures for tobacco use: the percentage of patients who were queried about tobacco use 1 or more times during the 2-year measurement period, and the percentage of patients identified as tobacco users who received cessation intervention during that measurement period. Similar measures are part of the measurement sets for adult diabetes, community-acquired bacterial pneumonia, chronic stable coronary artery disease, and chronic obstructive pulmonary disease.

The National Quality Forum has endorsed the HEDIS and JCAHO measures on tobacco and most Consortium measures on tobacco as “national consensus standards” (16, 17). In its starter set of 26 measures, the Ambulatory Care Quality Alliance has included measures on screening patients for tobacco use and advising smokers to quit (18). Now that evidence-based and consensus-based performance measures have been developed and endorsed for identifying tobacco users, advising them to quit, and providing cessation treatment, all health care organizations and clinicians need to use these measures and improve their performance.

Finally, we must work in the public policy arena to mitigate the enormous burden of tobacco-caused disease. The Framework Convention on Tobacco Control (FCTC) is the first treaty initiated by the World Health Assembly,

the governing body of the World Health Organization (WHO). Its provisions address tobacco advertising and promotion, packaging and labeling, secondhand smoke, smuggling, taxation and duty-free sales, product regulation, ingredient disclosure, and liability. As of 23 February 2006, 168 countries had signed the treaty and 124 countries had ratified it (19). On 10 May 2004, Secretary of Health and Human Services Tommy G. Thompson signed the treaty on behalf of the United States. After signing the treaty, Secretary Thompson stated the following in a press release: “The United States has long been a world leader in anti-smoking efforts . . . President Bush and I look forward to working with the WHO and other member nations to implement this agreement” (20). Unfortunately, President Bush has not yet sent the treaty to the U.S. Senate for ratification. Physicians and other health advocates should make the United States’ failure to ratify the FCTC a cause célèbre.

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**Disclosure:** Dr. Davis is a member of the American Medical Association’s Board of Trustees and the Joint Commission on Accreditation of Healthcare Organizations’ Board of Commissioners.

**Potential Financial Conflicts of Interest:** None disclosed.

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*Ann Intern Med.* 2006;144:444-446.

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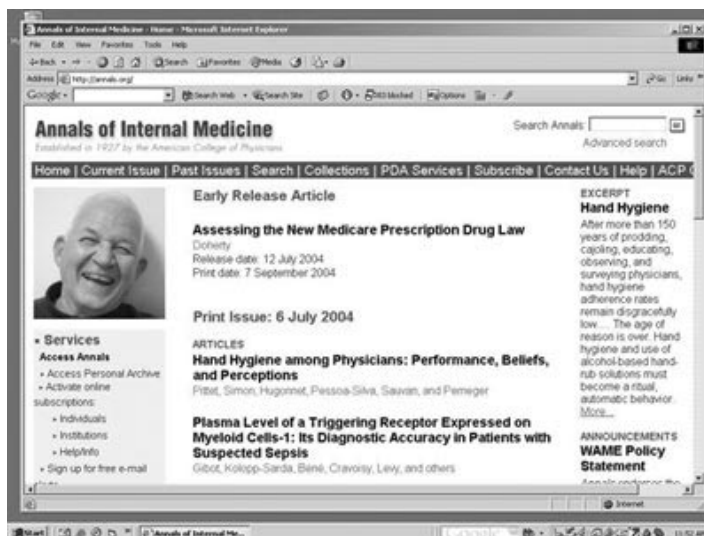
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