New research appears to expand our understanding of how increases in cigarette prices can help to reduce smoking rates. A recent study on the subject by Victoria L. Stevens, PhD, strategic director of laboratory services in the Epidemiology Research Program at the American Cancer Society in Atlanta, Georgia, and colleagues found that the effects of price increases extended to smokers aged 65 years and older (Cancer Epidemiol Biomarkers Prev. 2017; 126:1071-1077). The results suggest that a higher tax on cigarettes would increase their price, reduce smoking rates in older adults, and consequently decrease the risk of smoking-related cancers and other diseases in this high-risk group.

Previous studies have consistently demonstrated that cigarette price increases can be an effective tool, not only for the prevention of smoking initiation but also for the reduction of cigarette use among young smokers. “Most of the previous studies of the influence of cigarette prices on smoking behavior have been done with younger adults and adolescents,” explains Dr. Stevens. However, questions remained as to whether higher cigarette prices can increase smoking cessation among older smokers. Smokers aged 65 years and older face the highest risk of smoking-related disease, and their number is predicted to double in the United States between 2012 and 2050. Despite their advanced age, smoking cessation would benefit these individuals via a reduced risk of smoking-related mortality and hospitalization.

Data From an Ongoing American Cancer Society Cancer Prevention Study

The study included smokers aged 50 years and older. The investigators worked with 2 measures of cigarette pricing: price change and average price level. These measures were only modestly correlated, and provided different insights into how smokers respond to a change in cigarette pricing.

To address this question, the investigators used data obtained between 1997 and 2013 from the American Cancer Society’s Cancer Prevention Study II (CPS-II) Nutrition Cohort. This prospective cohort study of 184,185 men and women was initiated in 1992 to study cancer incidence risk factors. Among these CPS-II Nutrition Cohort participants, Dr. Stevens and her colleagues identified 11,258 individuals from 48 states and Washington, DC who reported in 1992 and/or 1997 that they were current or former smokers, and then reported at least once during the follow-up period (1997-2013) to be a current smoker.

The researchers asked CPS-II Nutrition Cohort participants to complete biennial follow-up questionnaires regarding smoking status and numerous additional factors known or suspected to be associated with smoking.
cancer risk. They used the answers to these questionnaires to determine which participants who reported being a current smoker on a particular study questionnaire had remained a current smoker or had quit smoking by the time of the subsequent study questionnaire approximately 2 years later. Because the researchers had access to state-level cigarette pricing data and also knew where the study participants lived, they were able to calculate changes in the price per pack and average price level per pack during each of the intervals between biennial questionnaires. Annual cigarette price data included the manufacturer’s price, state excise tax, federal tax, and sales tax. The researchers used multivariable-adjusted models (including participant demographic characteristics, smoking history duration and intensity, other comorbidities and cancer risk factors, and smoke-free air laws in each participant’s state of residence) to evaluate the associations between these cigarette price variables and smoking cessation.

Results
Over the course of the 7 biennial questionnaires, smokers had an average quit rate of 21%. The multivariable-adjusted analysis demonstrated that the average cigarette price level was associated with smoking cessation among smokers aged 65 years and older but not in those aged 50 to 64 years, and that each $1-price increase during an approximately 2-year interval was associated with a 9% higher rate of smoking cessation. In addition, participants who paid higher average prices were more likely to quit smoking. This association was roughly dose dependent, with a 6% higher quit rate noted for each $1-increment in average price.

In addition, the associations between cigarette pricing changes and smoking cessation were highest for smokers with no major prevalent disease. There was no obvious difference observed between the effects in men and women. Finally, the associations between price change and average price were weaker in college graduates than in smokers with less education, although the effect of education was not statistically different. In addition, the study notes that the associations between price change or average price level and smoking cessation did not differ significantly as the number of cigarettes smoked per day changed.

“The finding that higher cigarette prices were associated with higher quit rates in older smokers was somewhat surprising,” says Dr. Stevens. “Most of these individuals had been smoking for many years and had not quit, despite the implementation of numerous tobacco control measures and an overall decline in the cultural acceptance of smoking. So, our finding that the quit rate among these hard-core smokers was associated with cigarette prices was unexpected.”

Policy Implications
“To our knowledge, ours is the first study to demonstrate an association between cigarette pricing and smoking cessation rates in adults aged 65 years and older,” wrote the authors in their discussion. “Although previous studies showed an inverse association between cigarette price and the prevalence of smoking in older adults, only one of these studies specifically investigated smoking cessation. In that study, higher cigarette prices appeared to be positively associated with smoking cessation, but this association was not statistically significant.”

These new findings suggest that cigarette taxes can join smoke-free air laws as effective tools with which to promote smoking cessation among older, long-term smokers. “Even older smokers who have smoked for a long time can benefit from quitting smoking and should be urged to do so,” says Dr. Stevens. “Also, because higher cigarette prices promote smoking cessation, clinicians should support efforts to increase taxes on cigarettes in their state.”