The cardiovascular risks of smoking have long been known. It has now been a half a century since the first US Surgeon General reported that smokers had significantly higher risks of coronary heart disease than nonsmokers. The cardiovascular benefits of smoking cessation have also been clear for some time. Forty years ago, Wilhelmsson et al first reported that smokers who continued to smoke after myocardial infarction (MI) had twice the mortality risk as those who quit. Other studies confirmed that smoking cessation after MI was associated with ≥50% reduced risk of vascular death, an effect size that dwarfs that seen in other secondary prevention interventions, including aspirin, statins, or clopidogrel. Furthermore, advances in our secondary prevention medication armamentarium have not mitigated the importance of smoking cessation. Even in contemporary practice, those who quit smoking after an MI have significantly lower risks of future mortality and recurrent events relative to those who continue to smoke. Although these effects on hard cardiovascular end points are impressive, smoking cessation has also been linked to improvements in patient quality of life, functional status, and angina control. See Article by Jang et al

In this issue of Circulation: Cardiovascular Interventions, Jang et al add to this already impressive body of literature. In a large, well-conducted study, the authors examine the effect of smoking status on a battery of health related quality of life outcomes among patients undergoing percutaneous coronary intervention (PCI). The study demonstrates several important findings. First, smokers were on average almost a decade younger at the time of PCI than nonsmokers or former smokers. Second, although younger, smokers reported more functional limitations, poorer symptom control, and worse quality of life at baseline than nonsmokers. After PCI, improvements in these metrics were seen among all groups, yet those who continue to smoke had the highest angina frequency and the lowest quality of life scores 1 year after their PCI. Thus, even in the era of drug-eluding stents, the benefits of smoking cessation after PCI remain clear.

But perhaps the most powerful and sobering message from Jang et al is that smoking cessation remains the exception rather than the rule. Sadly, the authors found that 2 out of 3 PCI patients failed to quit smoking even after an intervention on their diseased coronaries. Those who continued to smoke were more likely to be black, had lower education level, and were less likely to be married than those who quit, further heightening known disparities in outcome among vulnerable populations. The findings from Jang et al are not unique. Nearly 20% of US adults continue to smoke, and multiple contemporary studies demonstrate that quit rates after MI remain ≈50%. Although as a nation we have done a much better job at implementing other secondary prevention medications, improvements in the rate of smoking cessation has been a disappointing outlier.

Why the lack of progress? The American Heart Association/American College of Cardiology Guidelines for stable ischemic heart disease and acute coronary syndromes both recommend education about smoking cessation in patients with cardiovascular disease, and a Centers for Medicare and Medicaid performance measure has been created attempted to improve smoking cessation counseling rates after acute MI. Yet although the documentation of smoking cessation has risen nationally to near perfection, actual patient smoking cessation has changed little. This is because effective tobacco cessation programs require >1 time inpatient counseling.

However, data do support other potentially effective ways to help improve rates of smoking cessation among adults with cardiovascular disease. Participation in cardiac rehabilitation has been associated with higher rates of smoking cessation, with up to a 3-fold increase seen in the odds of tobacco cessation among patients who participated in cardiac rehabilitation. Pharmacological interventions for smoking cessation have shown some success but seem to be underused. For example, a large post-MI registry found that only 14% of smokers were prescribed smoking cessation medications at discharge. In addition, several multidisciplinary smoking cessation interventions, including behavioral interventions, and ongoing support, such as telephone support-based interventions, can increase the rate of successful tobacco cessation at 1 year.

So what is next for research on smoking and cardiovascular disease? After 50 years, it is time to move beyond the low-hanging fruit of documenting the problem. The degree to which individuals in this county who smoke quit, even with known disease, is abysmal. Yet smoking presents a unique opportunity to engage both clinicians and patients into shared accountability for change. Future research should focus on when and how to best deliver comprehensive
smoking cessation interventions. In addition, implementation and quality improvement studies will need to define how such interventions can be integrated into routine cardiovascular care. Finally, reform in our reimbursement and performance measures will be needed so as to provide adequate incentives for successful and sustained risk factor modification.

This study and the hundreds before it have raised clear societal smoke signals. Smoking remains one of the most potent, but least often modified, risk factors for cardiovascular disease. Achieving lasting smoking cessation is hard, but the health gains from it are remarkable. Although it may not be as sexy a successful coronary intervention, assisting a patient to successfully quit smoking can be as, or even more, impactful on their quantity and quality of life in the long run.

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