

quit in the past year.⁵ Therefore, elevated rates of smoking among people with cancer as compared with the general population probably reflect a failure to reliably deliver effective smoking-cessation treatments in oncology settings in addition to the higher prevalence of cancer among smokers as compared with nonsmokers.

Several factors contribute to this important gap in cancer care. Clinicians are understandably often focused on the exigent need to treat the patient's cancer, so tobacco treatment often becomes an afterthought. Although smoking directly causes 30% of all cancer deaths,¹ clinicians may not appreciate the harms caused by continued smoking among patients with cancer. Furthermore, some clinicians believe that they are inadequately trained to deliver effective treatment for tobacco use and that their patients will resist such treatment or that it will not be effective.⁴ Some clinicians may also fear that focusing attention on smoking will exacerbate the guilt and shame that smokers often feel after the development of cancer. Such factors, along with resource limitations, have hindered the delivery of effective smoking-cessation treatments in cancer patients for too many years.³ We believe that a strong and strategically engineered program is needed to support and organize resources to overcome these obstacles.

To address this need, the NCI (where two of us work), launched a nationwide effort as part of the Cancer Moonshot to help people who are undergoing treatment for cancer to quit smoking. The Cancer Center Cessation Initiative (C3I) is designed to use implementation science to jump-start smoking-cessation treatment at NCI-designated

cancer centers (https://youtu.be/mH_Lot3PjR0). In late 2017, some 22 cancer centers received 2 years of funding (\$250,000 per year) to begin or expand smoking-cessation treatment programs (see map). In 2018, an additional 20 centers received funding at the same level. The University of Wisconsin (where one of us works) serves as the coordinating center for C3I. Findings from the initiative regarding effective smoking-cessation interventions in this population and best practices for implementing and delivering them will be synthesized and shared with clinical cancer facilities nationwide. The ultimate goal is to ensure that all patients with cancer who smoke are provided with cessation support and assistance such as counseling and medication in conjunction with their cancer care.

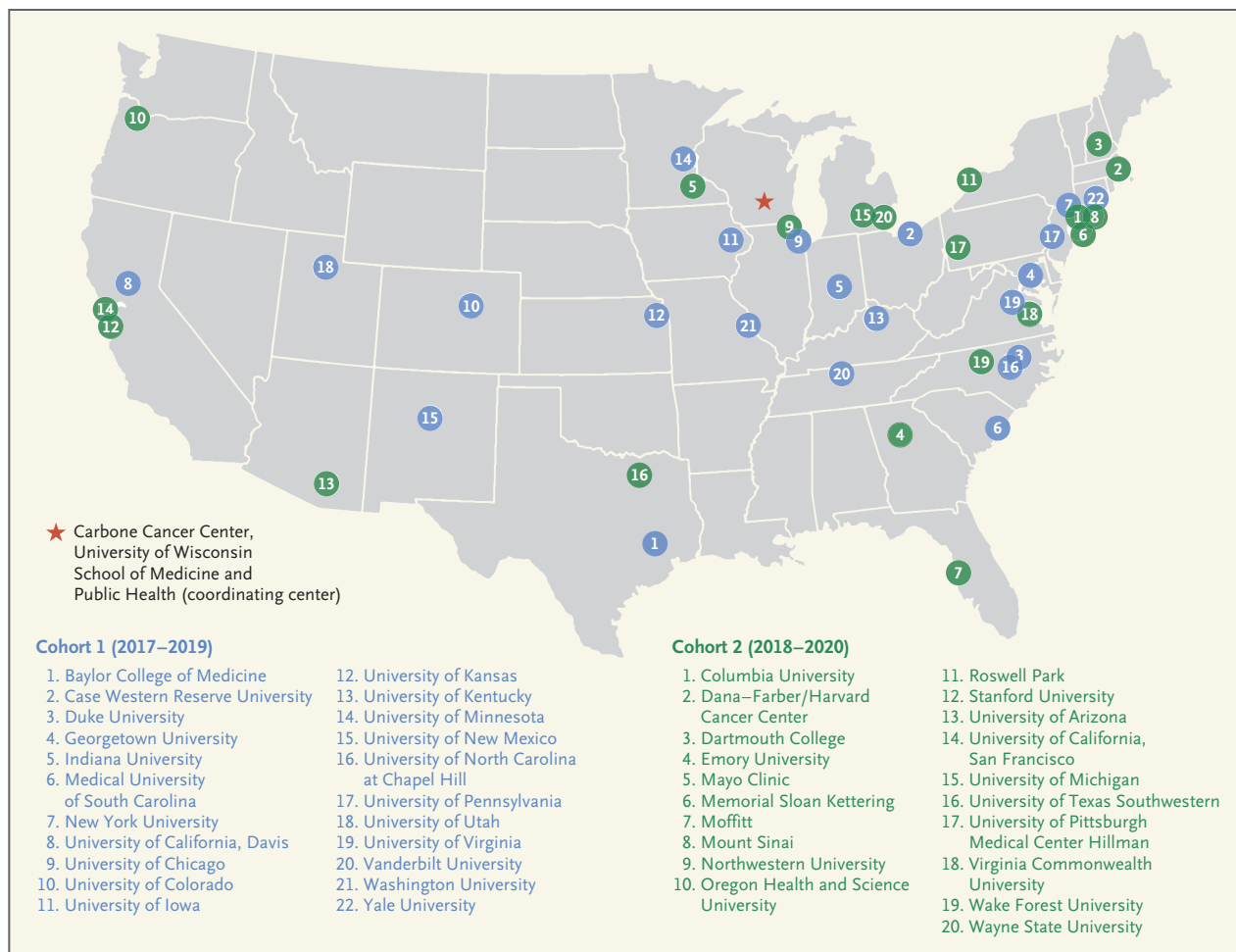
C3I is strategically designed to have a broad clinical impact and includes several innovative features. As part of the initiative, every patient with cancer who smokes and presents to a funded center should be identified, urged to quit, offered evidence-based cessation treatment, and tracked in order to assess treatment outcomes. Centers must also take a systems-based approach, integrating evidence-based tobacco-dependence treatment into cancer care workflows and using electronic health record (EHR) technology to facilitate such integration. Finally, each center is required to have a plan to support its program after NCI funding ends to ensure that programs are sustainable.

C3I targets cancer centers that have had clear gaps in their tobacco-treatment programs but have developed innovative and highly feasible plans to address

these gaps. Oncology settings are not unique, however, in failing to address the treatment needs of patients who smoke. One possible collateral benefit of C3I is that the findings from this effort may be used to enhance smoking-cessation treatment in other medical specialties and patient populations, such as people with diabetes, cardiovascular disease, or chronic obstructive pulmonary disease.

As an implementation-science effort, C3I is focused not only on what to implement, but also on how to implement it. The participating cancer centers vary greatly in organizational context and approaches to treatment for tobacco use. This variation affords a critical opportunity to determine how evidence-based tobacco interventions can be most effectively translated into day-to-day clinical practice in cancer care. Because successful adaptation within individual centers is expected to depend in part on modifications to the EHR, consulting resources for EHRs are provided to all participating centers.

Each center in the first C3I cohort has identified ways to leverage opportunities to improve smoking-cessation treatment in its clinical care programs or to address program limitations. These strategies include making enhancements to the EHR to facilitate the key steps in the provision of such treatment: identifying patients who smoke, offering evidence-based smoking-cessation treatment, delivering treatment, and providing follow-up support. In addition, some centers are using C3I support to fund new positions, improve program workflows to reduce clinician burden, and develop new billing and reimbursement strategies to help



NCI-Designated Cancer Centers Selected as Part of the Cancer Center Cessation Initiative (C3I).

sustain their programs after NCI funding has ended.

Established by Congress in 2016 as part of the 21st Century Cures Act, the Cancer Moonshot is designed “to accelerate cancer research to make more therapies available to more patients, while also improving our ability to prevent cancer and detect it in an early stage.” C3I is designed to help meet these goals by increasing the participation of patients with cancer in smoking-cessation treatment, improving the effectiveness of cancer treatment, and preventing cancer recurrence. The initiative has the potential to trans-

form clinical cancer care so that evidence-based smoking-cessation treatment is an integral component of care for every person with cancer who smokes.

Disclosure forms provided by the authors are available at NEJM.org.

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1. Gritz ER, Toll BA, Warren GW. Tobacco use in the oncology setting: advancing clinical

practice and research. *Cancer Epidemiol Biomarkers Prev* 2014;23:3-9.

2. The health consequences of smoking — 50 years of progress: a report of the Surgeon General. Rockville, MD: Public Health Service, 2014 (<https://www.surgeongeneral.gov/library/reports/50-years-of-progress/index.html>).

3. Goldstein AO, Ripley-Moffitt CE, Pathman DE, Patsakhom KM. Tobacco use treatment at the U.S. National Cancer Institute’s designated cancer centers. *Nicotine Tob Res* 2013;15:52-8.

4. Warren GW, Dibaj S, Hutson A, Cummings KM, Dresler C, Marshall JR. Identifying targeted strategies to improve smoking cessation support for cancer patients. *J Thorac Oncol* 2015;10:1532-7.

5. Ramaswamy AT, Toll BA, Chagpar AB, Judson BL. Smoking, cessation, and cessation counseling in patients with cancer: a population-based analysis. *Cancer* 2016;122:1247-53.

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