



Gary Ernest Smith. *Horses and Pigs*. Oil on canvas, 18" × 24". Courtesy of Raymond E. Johnson's Overland Gallery of Fine Art, Scottsdale, Arizona.

*The integration of smoking cessation assistance into comprehensive cancer care offers treatment-related benefits, as well as health and psychosocial benefits to patients and their family members who smoke.*

# Teachable Moments for Promoting Smoking Cessation: The Context of Cancer Care and Survivorship

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**Background:** *There has been a call for comprehensive cancer care that gives greater consideration to changing lifestyle risk factors such as smoking to improve prognosis and long-term health. Cancer diagnosis, treatment, and survivorship offer challenges and opportunities ("teachable moments") to promote smoking cessation.*

**Methods:** *This review provides a rationale for the importance of smoking cessation programs in the cancer context, highlights practice guidelines for the delivery of these interventions, summarizes the challenges to smoking cessation unique to cancer patients, and recommends approaches to capitalize on the cancer context to promote smoking cessation.*

**Results:** *Barriers to smoking cessation by patients with cancer include heavy nicotine dependence, urgency of cessation, fatalistic attitudes about cessation benefits, cancer-related psychological distress, treatment factors, and the presence of smokers in the social network. Opportunities to promote cessation include the transition from inpatient to outpatient care, involvement in cancer patient care by family members who smoke, and distribution of clinical feedback (eg, test results).*

**Conclusions:** *Teachable moments in the cancer context are not being fully utilized to promote smoking cessation. Evidence-based guidelines can assist cancer care teams in promoting cessation.*

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## Introduction

In 2003, more than 1.3 million Americans will be diagnosed with cancer.<sup>1</sup> Population projections suggest that with a steadily increasing proportion of the American population over the age of 60 years, cancer rates will continue to rise.<sup>1</sup> Moreover, advances in early detection and treatment have resulted in increased rates and duration of survivorship. Currently in the United States, more than 7.2 million adult survivors of cancer are at risk for second primary cancers and other chronic diseases.<sup>1</sup> Also notable are data from the National Health Interview Survey indicating that 80% of patients diagnosed with cancer have at least one other comorbid condition.<sup>2</sup> In response to these trends, there has been an increasing call for multidisciplinary cancer care approaches that emphasize “noncancer” issues, such as changing lifestyle risk factors that could improve the prognosis and long-term health of cancer patients.<sup>2</sup>

It is well known that tobacco use is the most preventable cause of cancer, accounting for 30% of all cancer-related deaths in the United States.<sup>1</sup> Less well appreciated is the fact that continued smoking following cancer diagnosis also adversely affects health outcomes by increasing the risk for treatment complications, recurrence, and second primary cancers. Also not well understood is that in addition to the well-established causal link to lung cancer and head and neck cancer, smoking increases the risk for cancers of the bladder, cervix, pancreas, liver, kidney, and stomach.<sup>3</sup>

Cancer diagnosis, treatment, and survivorship offer extraordinary challenges and opportunities, or “teachable moments,” to convey smoking cessation information with maximal impact. Cancer treatment and the associated physical symptoms, psychological distress, and other (often radical) changes in lifestyle and daily role responsibilities present unique and formidable challenges in promoting smoking cessation. Alternatively, a cancer diagnosis can be a catalyst that personalizes the harms of smoking and directs priorities to restoration and maintenance of good health for patients and their loved ones who smoke. Thus, the cancer context must be considered in the development and implementation of smoking cessation programs.

Clinical guidelines have been outlined for the delivery of evidence-based smoking cessation counseling in healthcare settings. However, these guidelines, predominantly based on the experiences within primary care settings, may not fully accommodate the special needs and considerations of seriously ill smokers and their families. In this report, we provide a rationale for the importance of providing smoking cessation pro-

grams to cancer patients and their families, briefly review the clinical practice guidelines for the delivery of smoking cessation interventions in healthcare settings, summarize the challenges in promoting smoking cessation that are unique to cancer patients, and recommend opportunities to capitalize on the cancer experience to promote smoking cessation.

## Rationale for Promoting Smoking Cessation in Cancer Care

A growing body of evidence shows that continued smoking following the diagnosis of cancer is associated with increased risk of treatment complications, disease recurrence, second primary cancers, and morbidity. To date, most studies have focused on patients with lung cancer and head and neck cancers. These studies have found that continued smoking increases the probability of cancer recurrence and second primary tumors among patients with these cancers.<sup>4-10</sup> Continued smoking after diagnosis also has been associated with poorer quality of life related to physical functioning, general health, vitality, social functioning, and emotional health among patients with head and neck cancer.<sup>11,12</sup> Accordingly, smoking abstinence following diagnosis increases the overall survival of patients with lung cancer<sup>13</sup> and head and neck cancers.<sup>14</sup> The benefits of cessation on outcomes for these cancers have been substantial. For example, among patients with locally advanced head and neck cancers, smoking cessation has been associated with a two-fold increase in complete response to radiation therapy and a 2-year increase in survival compared to those who continued to smoke.<sup>14</sup>

The effects of smoking cessation for other cancers have been less well studied, though the available evidence suggests the benefits may be similar. Among patients with breast cancer, continued smoking after diagnosis has consistently increased the risk of second malignancies, particularly primary lung cancers<sup>15,16</sup> and pulmonary metastasis.<sup>17</sup> These risks appear to be exacerbated by radiation therapy.<sup>15</sup> Increased risk of primary lung cancer also has been observed among patients who smoke and were treated with mantle irradiation for Hodgkin’s disease.<sup>18</sup> Continued smoking also may increase metastatic spread of malignant melanoma.<sup>19</sup>

For patients undergoing surgical treatment for cancer, smoking poses immediate risks of complications, diminished treatment success, and compromised recovery. Cessation of smoking for as little as 2 weeks prior to surgery reduces the incidence of postoperative complications.<sup>20</sup> Quitting smoking before surgery may

**Table 1. — Patients Who Reported Current Smoking According to Cancer Site and Timing of Assessment**

Cancer Site	Reference (Year)	Smokers (%)	Timing of Assessment
Bladder	Ostroff et al <sup>26</sup> (2000)	45	At diagnosis
Breast	Demark-Wahnefried et al <sup>27</sup> (2000)	13	At diagnosis to 5 yrs postdiagnosis
Head and Neck	Gritz et al <sup>28</sup> (1999)	45	At diagnosis
	Ostroff et al <sup>24</sup> (1995)	60	Postsurgery
Lung	Gritz et al <sup>29</sup> (1991)	60	Postsurgery
	Asaph et al <sup>12</sup> (2000)	46	Prior to surgery
Prostate	Demark-Wahnefried et al <sup>27</sup> (2000)	7	At diagnosis to 5 yrs postdiagnosis
Various	Schilling et al <sup>30</sup> (1997)	19	At diagnosis

decrease the risk of surgical complications such as deep venous thrombosis, poor wound healing, and pulmonary embolism.<sup>21</sup> Following smoking cessation, surgical patients have decreased sputum production, improved airway functioning, and a lower risk of pulmonary complications.<sup>21</sup> For patients undergoing radiotherapy, continued smoking is associated with prolonged severity and duration of mucositis.<sup>22</sup> Aggressive treatment of cancer, though beneficial for increasing survival, also has iatrogenic effects. For example, radiation of the chest can damage heart muscle and initiate or exacerbate heart disease.<sup>23</sup> Thus, continued smoking during and after treatment could further compromise the health of patients with cancer.

Despite the growing awareness of the risks of continued smoking and the benefits of cessation, the prevalence of continued smoking following the diagnosis of cancer is high. Rates of smoking approach 40% among those newly diagnosed with cancer of the lung or head and neck<sup>12,24</sup> compared with 23% among the general population.<sup>25</sup> Age-matched comparisons of smoking rates are more striking: rates of smoking are 10% among adults 65 and older, the age cohort in which most lung cancers are diagnosed.<sup>25</sup> As summarized in Table 1,<sup>12,24,26-30</sup> rates of continued smoking among patients with cancer have ranged from 7% to 60% across a number of tumor sites. Rates are highest among patients diagnosed with lung or head and neck cancers.<sup>24,29</sup> The limited available data suggest that rates of smoking also may be high among patients diagnosed with other smoking-related cancers such as bladder cancer.<sup>31</sup> While rates of smoking among survivors of breast cancer (13%) and prostate cancer (7%) appear low, they are comparable to smoking rates among older populations.<sup>25</sup> A cancer diagnosis in childhood or adolescence may discourage smoking initiation.<sup>32</sup> However, rates of current smoking among these survivors — 15% to 18% — are appreciable,<sup>32</sup> and cessation rates in this population are only slightly greater than those observed among the general population. These trends are alarming, given

that treatment-related exposures may interact with smoking to increase cancer risk, which may not be fully appreciated by these survivors.<sup>32</sup>

Because smoking is a behavior that clusters in families, due in part to family modeling,<sup>33</sup> genetic heritability<sup>34</sup> and relationship affinities,<sup>35,36</sup> the social network of a cancer patient is likely to include other smokers. Limited available data suggest that on average, a cancer patient has two relatives who smoke.<sup>30</sup> Our surveys of lung cancer patients with relatives who smoke suggest that approximately half of these relatives report at least weekly contact with the patient.<sup>37</sup> Moreover, 71% of these smokers were immediate family members. Thus, intervening with family members who smoke could not only benefit patients in their efforts to quit smoking but also provide substantial public health benefit in preventing tobacco-related cancers and other chronic diseases in the broader family network.

In summary, the integration of smoking cessation advice and assistance into comprehensive cancer care offers numerous treatment-related benefits, as well as several general health and psychosocial benefits to patients and their family members who smoke.

## Clinical Practice Guidelines for the Delivery of Smoking Cessation Interventions in Health Care

A growing body of evidence shows that healthcare providers (eg, physicians, nurses, physicians' assistants) can be effective in promoting smoking cessation. Their recommendation to quit smoking provide a credible and compelling message to patients about the risks of continued smoking and the benefits of quitting. Consistent evidence suggests that by using brief counseling techniques in keeping with the National Cancer Institute's 5 A's heuristic model,<sup>38,39</sup> which consists of (1) asking about smoking, (2) advising about quitting, (3)

**Table 2. — The “5 A’s” for Brief Smoking Cessation Intervention**

Action	Tactics for Successful Intervention
1. <b>Ask</b> about tobacco use.	Identify and document tobacco use status for every patient at every visit.
2. <b>Advise</b> to quit.	In a clear, strong, and personalized manner, urge every tobacco user to quit.
3. <b>Assess</b> willingness to make a quit attempt	Is the tobacco user willing to attempt quitting at this time?
4. <b>Assist</b> in quit attempt.	Use counseling and pharmacotherapy to help patients willing to make a quit attempt.
5. <b>Arrange</b> follow-up.	Schedule follow-up contact, preferably within the first week after the quit date.

Source: Fiore MC, Bailey WC, Cohen SJ, et al. *Treating Tobacco Use and Dependence: Clinical Practice Guideline*. Washington, DC: US Dept of Health and Human Services; June 2000. Public Health Service publication no. 000032.

assessing readiness to quit, (4) assisting, and (5) arranging follow-up, healthcare providers can be successful in promoting smoking cessation in clinical care settings (Table 2).<sup>40</sup>

A parallel and invaluable tool for healthcare providers has been the promulgation of US Department of Health and Human Services clinical practice guidelines for treating tobacco use and dependence.<sup>38</sup> These guidelines, first published in 1996 and then updated in 2000, are based on an expert panel’s comprehensive and critical review of the evidence base for the management of tobacco-dependent patients. The eight key recommendations and findings are summarized in Table 3. The guidelines emphasize that effective tobacco-dependence treatments be made available to all patients regardless of their stated willingness to quit. The guidelines also acknowledge that while intensive interventions are often associated with better cessation outcomes, brief interventions can be effective as well.

**Table 3. — Smoking Cessation Clinical Practice Guidelines: Findings and Recommendations**

Tobacco dependence is a chronic condition that often requires repeated intervention.
Effective tobacco dependence treatments are available.
Consistency in the identification, documentation, and treatment of every tobacco user in healthcare settings is important.
Brief tobacco dependence treatment is effective, and every patients who uses tobacco should be offered at least brief treatment.
The dose-response relationship between the intensity of tobacco dependence intervention and effectiveness is strong.
Counseling and behavioral therapies are effective and should be used with all patients.
Numerous pharmacotherapies for smoking cessation have proven efficacy and, in the absence of contraindications, should be used with all smokers attempting to quit.
Tobacco dependence treatments are cost-effective.
Source: Fiore MC, Bailey WC, Cohen SJ, et al. <i>Treating Tobacco Use and Dependence: Clinical Practice Guideline</i> . Washington, DC: US Dept of Health and Human Services; June 2000. Public Health Service publication no. 000032.

The weight of the evidence suggests that multicomponent cessation programs in which healthcare providers combine strong advice to quit with pharmacotherapy (eg, nicotine replacement or other aids), ongoing support, and referral to additional cessation counseling assistance when needed can result in a two-fold increase in cessation rates.<sup>38</sup>

Programs with the best cessation outcomes are those that assist smokers not only in developing and using practical problem-solving and coping skills for dealing with urges, but also in seeking social support and encouragement from their social network and through a therapeutic alliance with a healthcare provider.<sup>38,40</sup> The guidelines summarize the strong literature base for the use of effective pharmacotherapies (ie, bupropion sustained release, nicotine gum, nicotine inhaler, nicotine nasal spray, and nicotine patch) for all smokers attempting smoking cessation, except those with medical contraindications. These pharmacotherapies, several of which are now available without a prescription, have proven to reliably increase long-term smoking abstinence rates and be cost effective.<sup>41</sup>

Use of the 5 A’s counseling heuristic combined with the clinical practice guidelines offers an evidence-based framework for promoting smoking cessation among cancer patients and their families. However, the challenges and opportunities for smoking cessation that are unique to the cancer context must be considered in their implementation.

## Challenges of Promoting Smoking Cessation in the Cancer Context

The few smoking cessation interventions that have been evaluated in cancer patient populations also have been targeted to patients with lung or head and neck cancers. Generally, both minimal and more intensive programs have been associated with relatively high rates of cessation, suggesting that this population is responsive to these cessation programs.<sup>29</sup> Consistent

with the clinical guidelines, these interventions generally have included standardized provider advice to quit, education about the risks of smoking and the benefits of quitting, self-help print materials with content customized to the needs and concerns of cancer patients, discussion and agreement on a quit date, and serialized follow-up sessions. Interventions have been conducted in both outpatient and inpatient settings. Abstinence rates for the intervention and usual care conditions have been high — up to 70% in the first 6 months, far above those reported in the general population of smokers (generally 10% to 20%).<sup>42</sup> However, relapse following hospital discharge also has been relatively high, suggesting that the sustainability of these cessation efforts has not been fully addressed by current intervention approaches.

Part of the challenge of tailoring smoking cessation interventions to meet the special needs of patients with cancer is that little is currently known about the naturalistic factors that impede those patients' smoking cessation efforts. Again, most of these studies understandably have focused on the treatment- and smoking-related characteristics of patients with lung or head and neck cancer, among whom rates of smoking are highest.<sup>24,29</sup> Some information about barriers to cessation can be inferred from the characteristics of these patients, particularly the patients who continued to smoke following the cancer diagnosis. Other factors such as levels of motivation, self-confidence, and skills needed to succeed at smoking cessation in this context have been less studied, but they likely are influenced by the patient's nicotine dependence and long smoking career.<sup>43</sup> Conceptual models of behavior change<sup>39,44,45</sup> agree that to be successful at smoking cessation, smokers must be able to overcome barriers associated with behavioral reinforcements, maladaptive patterns of thinking, and social environmental influences (Table 4). The context of cancer diagnosis has a unique impact on all of these barriers.

### *Barriers for Smoking Cessation Among Cancer Patients*

**Nicotine Dependence:** Continued smoking by cancer patients under life-threatening circumstances illustrates the strong addictive nature of nicotine. Accordingly, patients diagnosed with tobacco-related cancers typically report long histories of heavy tobacco use. These smokers reported an average of 28 or more cigarettes per day and a smoking history of 35 to 40 years.<sup>24,29</sup> Moreover, greater number of daily cigarettes and earlier age of initiation of smoking have been negatively associated with smoking cessation following diagnosis of head and neck cancers.<sup>46</sup> This may be due in part to the occurrence of withdrawal symptoms (eg,

**Table 4. — Challenges and Benefits of Smoking Cessation in Cancer Patients**

Benefits	Barriers
Improved survival rate	High psychological distress
Fewer treatment complications	High nicotine dependence
Improved treatment efficacy	Abrupt cessation vs “commitment to abstinence”
Reduced risk of disease recurrence and second primary tumor	Low quitting self-efficacy
Improved mastery and control	Knowledge deficits
	Negative social support

cravings, restlessness, difficulty concentrating, insomnia) that may be particularly severe for the most nicotine-dependent smokers. Thus, those with strong nicotine dependence may require pharmacotherapies that address nicotine withdrawal or other symptoms such as depression. Also, extended duration of these therapies may need to be considered to promote long-term smoking cessation.

The genetic bases of nicotine dependence are being explored to understand whether those who continue smoking may differ genetically from those who quit. This information may aid in the development of customized pharmacological and behavioral treatments. Research has focused on two categories of genes: those that may predispose the individual to addictive behavior via their influence on the reinforcing properties of nicotine (eg, via heightened arousal and pleasure) and those that may influence the individual's response to nicotine via their involvement in nicotine metabolism (eg, fast vs slow metabolizers).<sup>47</sup> Though promising, this nascent line of research likely will not translate into new treatments in the near future.

**Urgency of Cessation:** Success in quitting smoking also may be challenged by the pressure for abrupt and immediate cessation following diagnosis. Standard smoking cessation programs often suggest a process of a period of days or weeks during which smokers keep track of smoking behaviors, identify smoking triggers, and take stock of personal motivators, all directed toward setting and planning for a specific quit date.<sup>48</sup> For cancer patients who become immediately engaged in the treatment course, this planning phase necessarily may be abbreviated. In addition, planning skills may be overwhelmed by distress related to the diagnosis. We have found that smokers who are able to quit prior to hospital admission and view hospitalization as a protected “jump-start” for quitting are more likely to maintain long-term smoking abstinence. Thus, patients should be advised to carefully consider how they want to approach smoking cessation and build in a planning phase, albeit short, in which they can anticipate challenges, elicit support, and plan accordingly.

**Fatalistic Beliefs:** In many cases, a cancer diagnosis is confirmation of the smokers' worst fears, and their general lack of knowledge of the benefits of cessation related to cancer treatment and survival may reinforce fatalistic attitudes. Patients often report that "the damage is done" and "it is too late to quit." This type of fatalism has been negatively associated with cessation among cancer patients.<sup>49</sup> Compounded by their extensive histories of heavy tobacco use and the high likelihood of prior failed attempts to quit smoking, and in turn their self-doubting beliefs, it makes sense that low confidence for quitting also impedes smoking cessation for many cancer patients.<sup>49</sup> Thus, to reduce fatalism, it is important that providers be knowledgeable and able to convey the short-term benefits of smoking cessation related to the patient's immediate concerns of cancer treatment and cure.

**Psychological Distress:** Stressful life events and psychological distress are widely regarded as barriers for smoking cessation and as triggers for resumption of smoking following quit attempts. Generally, patients with newly diagnosed cancer, and specifically smokers, typically report significantly elevated levels of distress.<sup>11,49</sup> Long-term and highly nicotine-dependent smokers may rely heavily on their smoking to regulate mood and cope with distress, and thus they may want to postpone cessation or only reduce their smoking as an alternative. A healthcare provider can assist patients by increasing their awareness of the cycle of nicotine dependence; nicotine craving and physical agitation are physical withdrawal effects that are relieved by smoking without providing any improvement in stressful life circumstances. Indeed, by exacerbating illness, smoking itself is a stressor that the patient can take control over, unlike other aspects of the cancer.

**Disease and Treatment Characteristics:** The debilitating effects of surgery, cancer treatment, and hospitalization may deter smoking in the short-term. Patients with more advanced disease or who receive more intensive treatments may have even longer periods of hospitalization and enforced initial abstinence. However, as patients recuperate and begin to regain feelings of normalcy in their social routines, such as work and family roles, temptations to smoke may increase. Our data indicate that relapse to smoking is highest within the first month following hospitalization.<sup>24</sup> Patients who undergo less aggressive treatment have less functional disability, resume their typical daily activities sooner, and may be exposed to more smoking cues and, in turn, greater risk of relapse. Accordingly, high rates of relapse have been observed among patients diagnosed with earlier-stage disease<sup>35,50</sup> or less intensive treatment regimens.<sup>46,49</sup> Patients can be alerted to these occurrences, and they can be encouraged to

anticipate challenges and to troubleshoot how to handle these challenges.

**Social Influences:** The presence of smokers in the social network makes it more difficult for patients to quit smoking and more likely that they will relapse. For cancer patients, initial abstinence often occurs in the context of a "protected" hospital environment in which patients are isolated from family members, friends, and coworkers who smoke. Following hospital discharge, the presence of household smokers and other peers who smoke may pose significant barriers for successful maintenance of abstinence for the long-term. This could be exacerbated for patients who attribute their initial abstinence to "hospital rules" or postsurgical physical symptoms rather than their own efforts. Patients should be encouraged to acknowledge their own accomplishments and lessons learned related to abstinence from smoking while hospitalized.

Evidence among patients with head and neck cancer suggests that the presence of other household smokers, most commonly a patient's spouse, is a significant predictor of smoking resumption at 12 months after diagnosis.<sup>50</sup> Living with a family member who smokes means repeated exposure to smoking cues in the home environment as well as ready access to tobacco products. Thus, family members who smoke should be included in recommendations related to smoking cessation and interventions.

Taken together, the weight of these barriers must not be underestimated but can be overcome. As described below, unique opportunities associated with cancer diagnosis can be built on to address these barriers and facilitate the cancer context as a "teachable moment" for promoting cessation.

## Opportunities to Promote Smoking Cessation

Cancer diagnosis and the cascade of associated events and interactions with the healthcare system have been described as "teachable moments" (TMs) for smoking cessation.<sup>27,30,31,50,51</sup> Our work suggests that whether a cueing event such as a cancer diagnosis is significant enough to be a TM for smoking cessation depends on the extent to which the event: (1) increases perceptions of personal risk and related expectations of positive or negative outcomes, (2) prompts a strong emotional response, and (3) redefines self-concept or social role.<sup>52</sup> Thus, clinicians and healthcare systems are well positioned to take advantage of this opportunity to build on patients' perceptions of personal vulnerability, emotions such as fear or hope, and changes

in self-concept to emphasize the importance of smoking cessation. Brief counseling techniques based on the precepts of motivational interviewing in which clinicians use reflective listening skills to explore the meaning of the health event for the individual and how these changes might affect the individual's smoking can be used to elicit personal motivators for cessation.<sup>53</sup>

Screening and diagnostic testing, discussions of treatment options, treatment visits, and attendance of family members in these contexts comprise a continuum of potential TMs for promoting smoking cessation to cancer patients and others in the social network. Some health events may be powerful cues unto themselves for promoting smoking cessation, while others may need more emphasis from healthcare providers to become salient for smoking cessation. For example, in studies examining predictors of continued tobacco use following cancer, the most widely replicated finding has been that patients who are diagnosed with early-stage, curable disease and those who undergo relatively less intensive treatment regimens are less likely to quit smoking.<sup>35,46,49,50</sup> Patients with early-stage disease who have a good prognosis for survival may minimize the magnitude of the health threat as a result of this favorable disease representation. Thus, it is critical to gauge the responses of the patient and family members to these events and tailor advice accordingly. However, anecdotally, clinicians often back away from circumstances of high emotionality, believing that the patient and family members have enough to deal with and therefore give smoking cessation a lower priority at these times. Efforts by healthcare providers to promote cessation should be salient to the unique opportunities and challenges of points in the transition of cancer care. As suggested in the examples below, these events might be built on to promote smoking cessation.

### *Example 1: Transition From Inpatient to Outpatient Care*

This transition, which is a high-risk period for smoking relapse, might present a TM for preventing relapse. At the time of discharge, providers could revisit smoking issues and reiterate the vulnerabilities and opportunities that are unique to this transition. For example, the benefits of smoking cessation in improved wound healing could be emphasized. A discussion could highlight emotions such as relief to be returning to routines and how these emotions might result in letting down one's guard with respect to smoking. Providers also could emphasize the responsibility of their patients to do everything possible to improve their health status. Simply informing patients that providers will be following up with them can be an effective deterrent to relapse.<sup>40</sup> Abundant evidence

suggests that it is essential that support systems remain positive, help smokers reframe any smoking lapses as learning opportunities, and encourage additional efforts. Thus, every opportunity should be taken in follow-up visits to encourage and congratulate cessation efforts with emphasis on "try, try again."

### *Example 2: Involvement of Family Members*

Contacts during cancer diagnosis and treatment could be opportune TMs for oncology healthcare teams to encourage smoking cessation among healthy family members. A cancer diagnosis has a strong emotional impact on the family. Reactions of fear, anxiety, sadness, and existential concerns are common and often are greater for the family members than for the patient.<sup>54</sup> Under these circumstances, relatives might be receptive to smoking cessation, particularly if it benefits the recovery of the patient. Our work with lung cancer patients' relatives who smoke (n = 79) supports this; in the 6 months following diagnosis, 75% of relatives who smoked attributed the patient's lung cancer to cigarette smoking and reported that the diagnosis had increased their desire to quit smoking.<sup>37</sup> However, despite their relatively strong desire to quit, 71% of relatives continued to smoke after learning of the patient's diagnosis. In a similar study,<sup>55</sup> approximately two thirds of tobacco-dependent patients with lung or head and neck cancer identified an active smoker within their immediate family, with adult children and spouses comprising 74% of the family smokers. Three months following diagnosis, 29% of the family cohort reported having quit smoking. However, at 12 months, the majority (66%) remained active smokers, though 55% were contemplating cessation. In the absence of clinician advice and supportive cessation programs, relatives who smoke may experience increased anxiety about smoking and heightened distress related to the patient's diagnosis without the assistance they need to reduce the threat. Thus, it is imperative that healthcare providers utilize tools such as the 5 A's heuristic model to encourage smoking cessation among family members of patients with cancer.

### *Example 3: Clinical Feedback*

Events such as receiving screening test results or cancer follow-up examinations may present TMs if providers link these events to the importance of smoking cessation. This may be particularly important for cancers that are not obviously linked to smoking (eg, cervical, breast, and prostate cancers) and that may not be perceived as relevant to smoking cessation. Timing cessation messages to coincide with communication of normal or abnormal test results could increase motivation for cessation among patients and loved ones. For

example, our earlier work showed that computed tomography scanning results motivated smokers to quit regardless of whether the results were normal or abnormal.<sup>31</sup> The clinician can use these events to increase the smoker's feelings of personal vulnerability, to build on emotional responses of relief or worry, and to encourage the patient to consider ways that smoking is inconsistent with their role as a patient or other relevant aspects of self.

For each of the above examples, ready availability and concurrent provision of self-help guides, pharmacological assistance, and scheduled follow-up consistent with the clinical practice guidelines are critical. Among the widely available resources to providers to support their efforts include evidence-based self-help cessation guides, group programs sponsored by national organizations (eg, the American Lung Association, the National Cancer Institute's Cancer Information Service [1-800-CANCER]), telephone services that offer cessation counseling, and an ever-growing armamentarium of pharmacotherapies.

## Conclusions

Strong and consistent evidence attests to the potential benefits of smoking cessation for improving cancer treatment outcomes and survival, avoiding relapse, and preventing the development of second cancers and chronic diseases. The cancer context, including diagnosis, treatment, and survivorship, presents opportunities that could be capitalized on as "teachable moments" to promote smoking cessation and other improvements in lifestyle among patients and their family members who smoke. Accordingly, both the American Society of Clinical Oncology and the Oncology Nursing Society<sup>56</sup> support the promotion of smoking cessation in cancer care settings and urge practitioners to assist patients' efforts in smoking cessation.

Guided by evidence-based recommendations and tools such as the 5 A's heuristic model, cancer care teams can be especially influential in promoting cessation. However, numerous challenges and opportunities unique to the cancer context must be considered. In particular, intensified support may be needed to encourage smoking cessation among those who do not quit following diagnosis. These efforts may take the form of self-directed or group programs, pharmacological treatments (eg, nicotine replacement or bupropion), and referral to patient support programs. Healthcare providers can build on the patient's and family's feelings of vulnerability and can engage in frank discussions about smoking cessation as a strategy to manage distress about survival and cancer recurrence.

For all patients, greater attention should be given to preventing relapse, particularly for patients with family members who continue to smoke and live in the same household. Including family members in patient visits and encouraging them to seek assistance for quitting may be needed. Again, to boost motivation for patients and their families, providers can emphasize, when appropriate, the role of family members as caregivers or inspiration builders for the patient.

An understanding of the factors associated with continued smoking or smoking relapse following cancer diagnosis is critical for identifying and addressing barriers to the delivery and uptake of smoking cessation interventions for this special patient population. Furthermore, greater attention should be directed to eliminating barriers to the delivery of smoking cessation programs within the oncology care system and to building related counseling skills and capacity among oncology care providers.<sup>56</sup>

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