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Perceptions of Facilitators and Barriers to Smoking Cessation Among Patients and Providers in a Cancer Center: A Single Institution Qualitative Exploratory Study

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Abstract

Purpose: Cancer patients who remain tobacco users have poorer outcomes, including increased mortality and decreased treatment tolerance; however, cessation post-diagnosis is challenging. Our formative research explored cessation-related perspectives among patients and staff at one National Cancer Institute-designated cancer center, to inform improving cessation services within oncology care. **Methods:** Using a descriptive phenomenological approach, a purposive sample of current cancer patients (n=13) and cancer center physicians and cessation program staff (n=9) were recruited to complete one-on-one audio-recorded in-depth qualitative interviews, to explore experiences providing or receiving cessation support, and perspectives on patients' readiness and needs regarding cessation. Thematic coding utilized Green's predisposing, enabling, and reinforcing framework to identify factors having positive, negative, or mixed impact on delivery of best-practices cessation services (ie, 5As) and patient cessation success. **Results:** Patients identified cancer diagnosis as a wake-up call, existing health problems, persistent healthcare providers, cost of cigarettes, and societal disapproval of smoking as factors facilitating quitting. Futility of quitting after a cancer diagnosis, cost and logistics of program participation, clinician time constraints, and lifetime addiction made quitting harder. Family, friends, stigma and motivation, and pharmacotherapies played mixed roles. Patients felt survivor-focused cessation programs, including stress management, could better enable quitting. Provider-anticipated problems with implementing cessation counseling included so-called "therapeutic nihilism" (ie, pessimism regarding cessation post-diagnosis), lack of training and standardized approaches, and time and documentation burden. Clinicians saw both policies and peer clinician "champions" as potentially increasing prioritization of cessation within oncology. **Conclusions:** Findings highlight unmet needs for patients and providers regarding provision of effective cessation care. Despite survival benefit, cessation is still not standard within cancer care. Our results show that many patients would benefit from standardized programs where they are routinely asked about cessation. Providers would benefit from both structural enhancements and professional education to ensure that evidence-based cessation services tailored to cancer patients, are offered throughout treatment and survivorship.

Keywords

tobacco, cessation, policy, clinician behavior, survivorship

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Introduction

Although it is widely accepted that tobacco use plays a causal role in the development of many types of cancer, the impact of continued tobacco use on survivorship is a more recent area of research as well as public messaging. There is a growing body of evidence that, for cancer patients, continued smoking can have substantial impact on morbidity and

mortality.¹ After accounting for disease characteristics such as tumor site, histology and stage, continued smoking is among the strongest adverse predictors of survival for cancer patients.² The 2014 Surgeon General's report on the health consequences of smoking showed that all-cause mortality was higher by a median of 51% among patients with cancer who smoked compared with never-smoking patients with



cancer, while former smoking was associated with a median increased risk of 22% compared with never smoking.¹ The 2020 Surgeon General's report on smoking cessation expanded these findings to look at the effect of smoking cessation and found that among 7 studies published from 2000 to 2016, continued smoking was associated with a median increased risk of all-cause mortality of 82% compared with quitting smoking.³ Among patients who require surgery, active smoking is clearly linked to an increased risk of perioperative and postoperative cardiovascular, pulmonary, and wound healing complications, including infections, anastomotic dehiscence, reintubation, and respiratory failure.^{4,7} These complications often turn into longer hospital stays,^{6,7} higher rates of intensive care unit (ICU) admission,⁶ greater need for repeat surgery,^{6,7} and higher overall costs of care.^{6,7} Smokers who quit also have an easier time coping with cancer and treatment and may even have a better response to chemotherapeutic medications.⁸ Patients who continue to smoke despite being diagnosed with cancer report more severe pain than never smokers and among former smokers there was an inverse relationship between pain severity and number of years since quitting.⁹ Smoking also puts patients at risk for comorbid disease adversely affecting quality of life.¹⁰ From a psychiatric perspective, quitting smoking is associated with decreased depression.^{10,11} A literature review mentioned increased survival rates, decreased subsequent malignancies, and reduced medical complications among those who quit smoking.¹¹ Ample literature also exists that demonstrates benefits to smoking cessation for specific disease sites.¹²⁻²¹

Each year, an estimated 55% of smokers in the general population report at least 1 quit attempt, with an estimated 8% remaining tobacco-free for 6 to 12 months.³ However, at the time of their diagnosis, smokers with cancer are typically older and have longer and heavier smoking histories, and many cancer survivors continue to smoke following diagnosis.^{22,23} For example, the 2013 to 2014 Population Assessment of Health and Tobacco (PATH) study found that smokers with cancer were more likely to be age 65 or older, compared to smokers without cancer (51.4% vs 15.6%) and report more pack-years of smoking (28.9 vs 19.6).²³

There is evidence that the prevalence of smoking among cancer survivors is declining, perhaps reflecting reduced rates of smoking in the US population overall. For example, the cancer supplement of the 2010 National Health Interview Survey (NHIS) found that 33.5% of those in the cancer

cohort were current smokers,²² and that a diagnosis of cancer was not associated with higher quit rates compared to the general population. The PATH study found that 17.2% of all cancer survivors smoked,²³ and 2020 NHIS estimates found that 12.2% of adults ever diagnosed with cancer were smokers.²⁴ These trends still leave a substantial number of cancer patients who could benefit from cessation and highlights a potential area for improvement in survivorship care.

The important role of healthcare professionals and health systems in cessation is widely recognized, providing access to both cessation medication and counseling, yet only 40% of all smokers report receiving cessation advice from their providers.³ Successful cessation intervention for survivors depends on factors related to both patients and their healthcare providers. Patients with cancer, compared to the general population, are thought to have higher levels of nicotine dependence, a higher number of comorbid conditions, poorer physical functioning, and more stress and psychiatric comorbidities, which can complicate smoking cessation and necessitate more intense or tailored programs to facilitate cessation.²⁵⁻²⁷ Cessation also takes an investment from cancer care providers who need to engage with their patients about smoking and offer help. Well-established evidence-based guidelines for treating tobacco dependence²⁸ recommend consistent use of structured strategies such as the "5 As" by clinicians. These are 5 brief clinician actions, estimated to require less than 5 minutes at each visit: asking about current tobacco use, assessing willingness to quit, advising cessation by specifying benefit for the patient's current health situation, assisting with creation of a quit plan, prescriptions, or referrals, and arranging for referrals. Similar to rates in the general population of smokers, one study found that only 51.7% of cancer survivors who currently smoke could recall being counseled to quit smoking by a healthcare provider in the past 12 months and less than half of cancer care providers report consistently discussing cessation, demonstrating underutilization of the 5 As and other quitting methods.^{22,29}

Cancer care clinicians report feeling inadequately trained to counsel patients on cessation and lack the time to do so within the structure of cancer care encounters.²⁹ Moreover, systems of cancer care rarely facilitate cessation. A 2009 survey of National Cancer Institute (NCI)-designated cancer centers demonstrated that 21% offered no tobacco-use treatment services, 38% offered no routine tobacco-education materials to patients, and over 50% had no dedicated employees to provide tobacco-treatment services.³⁰

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To address this need, The National Comprehensive Cancer Network recommends that all patients with cancer be offered effective treatment to help them quit smoking,³⁰ and the National Cancer Institute launched the Cancer Center Cessation Initiative (C3I), providing funding during 2017 to 2020 to 53 of the 71 NCI-designated cancer centers (including ours) to establish or expand smoking-cessation treatment programs. The goal of C3I was to ensure that every smoker treated at an NCI-designated cancer center be offered evidence-based cessation treatment and tracked in order to assess treatment outcomes.³⁰ Funded centers were charged with 4 goals:

- Refining electronic medical records and clinical workflows to ensure the systematic identification and documentation of smokers and the routine delivery of evidence-based tobacco cessation treatment services.
- Overcoming patient, clinician, clinic, and health system barriers to providing tobacco cessation treatment services.
- Achieving institutional buy-in that treating tobacco use is a component of organizational “Standard of Care.”
- Creating mechanisms to sustain tobacco cessation treatment services so that they continue beyond the funding period of the initiative.

To assess needs and inform institutional efforts in response to the C3I initiative in 1 large urban NCI-designated cancer center, this formative research was designed to build a contextual understanding of the behaviors of both cancer patients and clinical staff, in order to tailor C3I strategies for offering comprehensive smoking cessation services to all patients. The cancer center is located in a large mid-Atlantic U.S. city, which has some of the highest rates of both poverty and tobacco addiction in the United States.³¹⁻³³ In recognition of the multiple levels of influence on cessation services within the large organization, this formative investigation of influences at the clinician and patient level was complemented by data-driven investigations of systems-level factors such as electronic medical record (EMR) tools, patient population characteristics, and clinical utilization patterns.

Methods

The theoretical framework for our inquiry drew on the Predisposing-Enabling-Reinforcing framework, developed by Green and others,³⁴⁻³⁶ which identifies 3 types of influence on behaviors of individuals, including professionals such as clinicians. Predisposing factors are those which shape initial inclination or motivation to perform a

behavior, such as beliefs about the importance and effectiveness of the behavior (in this case, cessation counseling). Enabling factors promote or constrain the behavior, and reinforcing factors reward or punish the behavior, and shape the likelihood of continuation. Understanding which factors most influence a group’s relevant behaviors can inform behavior change interventions. For example, training clinicians to perform cessation counseling (enabling) will be more successful when clinicians know and accept the evidence base for cessation and are thus predisposed to see it as a therapeutic goal in cancer care, and subsequently experience reinforcing factors, including patient response, as well as positive peer and systems-level feedback.

The formative research utilized one-on-one in-depth interviews with cancer center professionals (clinicians, tobacco cessation program staff and leadership), and with patients who self-identified as current smokers. Our methodological and epistemological approach drew from descriptive phenomenology, a qualitative research approach which asks individuals to share their lived experience with the phenomenon of interest (in this case, as either a clinician caring for cancer patients who are also smokers, or those patients themselves).³⁷ We developed in-depth interview guides for both professionals and patients, asking about their actual experiences receiving or providing cessation support during cancer treatment, as well as their views on patient readiness and needs regarding quitting, and the feasibility of implementing a “Five As” approach to cessation services within cancer clinical care. As qualitative researchers, our team used reflexivity to acknowledge how our combined personal experiences as clinicians and public health scientists, former smokers, and individuals impacted by cancer shaped the lens through which we designed and interpreted our research.³⁸

Professionals were purposively and sequentially selected and recruited to provide diversity by role and clinical discipline, as well as gender, ethnicity and years in practice. Patients were recruited by flyers and announcements in clinical settings and patient-focused newsletters, as well as through clinicians. Drawing on the concept of “informational power,”³⁹ a sample of approximately 20 to 25 interviews from both groups combined was anticipated to be sufficient, given our exploratory goals, and the well-established prior work in this area within which to frame our context-specific analysis.

Each in-depth interview was conducted by telephone by 1 of the 4 authors, and lasted 45 to 60 minutes. A gift card was offered to patients as a thank you, while clinicians and staff contributed their time without incentives. All participants provided verbal consent, and the research was reviewed and approved by the Thomas Jefferson University institutional review board (IRB Control #: 18E.201).

All interviews were audio-recorded and transcribed verbatim. After reviewing all interviews and creating descriptive memos, 2 authors (LS and AK) developed an analytical framework and thematically coded the transcripts.⁴⁰ The analysis used Green's theoretical framework to examine predisposing, enabling and reinforcing influences on cessation service delivery, uptake by patients, and successful cessation, identifying factors as having potential positive, negative or mixed impact on each of these 3 influences.

Results

Table 1 provides descriptive information on the respondent sample. Tables 2 and 3 present the qualitative analyses, with thematic content from the patient (Table 2) and provider (Table 3) transcripts presented thematically by the Predisposing, Enabling and Reinforcing framework, with example quotes selected to illustrate the themes. The final column in Tables 2 and 3 focuses on the potential implications for cessation programs within cancer care settings.

Across a 14-month period (late 2018 to early 2020), we invited 13 clinicians and professional stakeholders to participate, 9 of whom were able to schedule and complete interviews. A total of 25 patients contacted us to express interest in participating. Seven were not cancer patients and therefore not eligible to participate, 5 could not be scheduled for interviews, despite repeated attempts, and 13 were successfully interviewed. Thus, a total of 22 participants completed in-depth interviews, including 13 patients being seen for active cancer treatment or follow-up at the cancer center, and 9 clinicians or professional stakeholders.

As Table 1 describes, the patient population was roughly balanced by gender, with 7 female and 6 male participants. Patients ranged in age from 37 to 68, but like the general cancer patient population, the majority (11 of 13) were age 50 to 68. 9 of 13 patients self-identified as African-American, and other 4 as white, and almost half of the participants reported that they had not completed high school or attended any college. 7 different primary cancer sites were represented with the common being lung (3 patients) and colorectal (3 patients). One patient was unable to name her primary cancer site. Eleven of the 13 patients had been diagnosed in the last 3 years and one-quarter were currently in active treatment, with the rest receiving regular follow-up at the cancer center.

Of the 9 stakeholder respondents, 1 respondent was a cessation counselor, 1 was a clinical administrator, and 7 were physicians, including 5 oncologists, 1 radiation oncologist, and 1 pulmonologist. Seven of the 9 respondents were women, and the majority self-identified as white, with 1 Asian-American and 1 Latinx respondent. Seven of 9 reported having 5 or more years of professional experience in cancer care.

Table 1. Characteristics of Patient and Stakeholder Participants (N=22).

Cancer patients (n=13)	N	%
Gender		
Male	6	46
Female	7	54
Age		
37-49	2	15
50-68	11	85
Ethnicity		
White	4	31
Black	9	69
Education		
≤ High school	7	58
> High school	6	42
Primary cancer site		
Colorectal	3	23
Lung	3	23
Lymphoma	2	15
Pancreas	1	8
Prostate	1	8
Breast	1	8
Head and neck	1	8
Unable to report	1	8
Time since diagnosis		
0-3 y	11	85
4-20 y	2	15
In active treatment	3	23
Stakeholders (n=9)		
Gender		
Male	2	22
Female	7	78
Years in profession		
< 5	2	22
5 or more	7	78
Ethnicity		
White	7	78
Asian-American	1	11
Latinx	1	11
Professional role		
Physician	7	78
Cessation counselor	1	11
Administrator	1	11

Predisposing Influences

In Table 2, the perspectives of the patients are presented thematically, with themes grouped by the theoretical framework of Predisposing, Enabling and Reinforcing influences on smoking cessation. When asked whether they viewed a cancer diagnosis and treatment time window as a time when cessation efforts were salient, and thus when patients might be predisposed to attempt cessation, some patients felt that both the seriousness of cancer diagnosis and treatment as well as the desire to regain health could create impetus for cessation.

Table 2. Thematic Analysis of Patient Perspectives on Cessation, and Implications for Cessation Program Planning.

Factor	Theme or topic	Illustrative quotes	Implications for cessation program planning and implementation
Predisposing factors	Positive	Survival and QoL <i>"Well, people are dying from cancers, so why . . . push it anymore and ruin the chances that they're having with the positive outcomes of the chemo and stuff" (Man, 59, Lymphoma)</i> <i>"I want to become active again. It's hard when you're smoking" (Man, 56, Prostate)</i>	Educate patients on their own specific benefits—both survival and quality of life
		Link between smoking and cancer <i>"Now you start deciphering it: It's prostate cancer, it did not come from . . . but it's still cancer. . . It gets in your blood and goes through your prostate." (Man, 56, Prostate)</i> <i>"I always said (breast cancer) don't come from smoking cigarettes, but now I see it can, it can affect any part of your body, smoking can." (Woman, 62, Breast)</i>	Strengthen patient education on tobacco's role in cancer etiology and progression
Negative	Futility <i>"People probably think I already got cancer so why quit. I might as well enjoy what time I have left" (Black Man, 37, Leukemia)</i> <i>"I really feel like I should be wanting to quit more now that I was diagnosed with cancer, but it's not working out that way." (Woman, 63, Pancreas)</i>	Tailor education to patient's individual QoL and survival benefits	
Mixed	Stigma and social isolation <i>"I'm a dying breed, literally. . . Parties it used to be you plus eight, ten people (smoking). Now I'm out there alone. I'm the asshole who smokes, and the funny thing is, I'm the asshole with cancer" (Man, 63, Head and Neck)</i>	Support socio-emotional needs, to address isolation, negative self-image	
	Lack of clear communication from providers on benefits <i>"Well, I don't know if he said the benefits. He might have said to save money or not going to smell like a cigarette. He might have said the benefits to my health." (Man, 59, Lymphoma)</i>	Train providers on 5A "Advise" regarding specific benefit to patient	
Enabling factors	Positive	Temporary cessation during hospitalizations <i>"When I was first diagnosed, I was in the hospital. . . , so the 2 weeks being in there and not smoking was a good thing" (Woman, 63, Pancreas)</i>	Pre-Tx Cessation Services: Prepare patients to take advantage of smoke-free period during treatment
Negative	Financial <i>"They offered to refer me to a smoking cessation program and my insurance wouldn't pay for one." (Woman, 63, Pancreas)</i> <i>"I don't have transportation to get down there for meetings or sessions." (Woman, 63, Pancreas)</i> <i>"It gets expensive going back and forth downtown all the time" (man, 63, Lung and Brain)</i>	Consider direct and indirect costs to cessation services and activities	
	Loss to follow-up <i>"I was referred to cessation services. I'm interested but I haven't heard nothing else" (Woman, 42, Colon and Lung)</i>	Consistent follow up with patients who may not be proactive (5th A)	
Mixed	Variable benefit from quit aids <i>"I tried the patch. I just don't like how it made me feel so I couldn't get used to using it." (Man, 37, Lymphoma)</i> <i>"I don't have to have cigarettes anymore, because the Chantix works pretty good that way, taking away the urges." (Man, 63, Lung and Brain)</i>	Offer all replacement therapies and modalities consistently with patients	
Reinforcing factors	Positive	Societal disgust with smoking <i>"You see people move away at the bus stop . . . because you sat down and went to light a cigarette. It's embarrassing." (Man, 56, Prostate)</i> <i>"I couldn't justify anything anymore. You know, I would be embarrassed to tell anybody I smoked, you know?" (Man, 63, Lung and Brain)</i>	Support psychosocial needs
	Positive health effects <i>"My breathing and everything had gotten better. . . I came upstairs. I wasn't breathing hard or nothing. Usually, I have to stop at the top of the steps." (Woman, 62, Breast)</i>		
Negative	Pervasive exposure to smoking <i>"Yes, 'cause he always scares me. He always give me something to kind of talk with scared straight into trying. . . but to me, out of sight, out of mind. When we get out, I be seeing smoke every day." (Woman, Age and Primary Site Not Reported)</i>	Cessation support that builds strategies for daily resistance to triggers	
	Exposure to cigarettes <i>"As long as I'm in the house by myself, I'm fine. As soon as someone comes that smokes and lights up a cigarette, then I want one." (Woman, 63, Pancreas)</i>	Target whole families and provide psychosocial support to establish smoke free zones, and avoid or manage triggers	
	Smoking as a coping tool <i>"The main reasons I've continued smoking are a lot of stress I'm going through now with the cancer and stuff." (Woman, 42, Colon and Lung)</i> <i>"Mainly it was going fine but I guess as stress and other stuff filled up smoking picked back up." (Man, 37, Lymphoma)</i>	Help patients build alternative coping skills	
Mixed	Incomplete cessation <i>"It's the guilt that you want to stop. People are so proud of you, say so many nice things about you. In secret you're like this. You're smoking." (Man, 56, Prostate)</i>	Support and celebrate reduction during cessation process, celebrate small steps	

Table 3. Thematic Analysis of Provider Perspectives on Cessation, and Implications for Cessation Program Planning.

Factor	Theme or topic	Illustrative quotes	Relevance for cessation program planning and implementation
Predisposing factors			
Positive	Cessation helps patients physically and psychologically	<p>“feel some . . . empowerment, . . . take some control back from a situation where control is completely removed from you”</p> <p>“Cessation is crucial to decreasing . . . morbidities with treatment . . . radiation/surgery”</p>	Train providers to counsel patients on cessation’s psychological benefits
	Step-wise approach, reinforcing each action toward cessation	“I feel the mark at first isn’t will the patient quit; it’s have I created an entryway to talk about it? Over time, you have to keep building on it.”	Train all providers on 5As step-wise approach.
Negative	Therapeutic nihilism	<p>“I think there’s a lot of therapeutic nihilism in the medical community about smoking. . . They think.. it’s impossible to get smokers to quit”</p> <p>“People tend to blame the smokers”</p>	Educate providers on cessation rates in patients, current evidence and best practices
Mixed	Lack of professional consensus regarding cessation as clinical priority	“I think a lot of oncologists are focused on, you know treating the cancer, finding a cure for cancer”	Educate providers on cessation benefit for survival.
		<p>“I think it’s one of the biggest. I tell people I’m on a one-woman crusade against smoking”</p> <p>“Surgeons will never talk about this”</p>	Improve cessation culture. Use influential physicians to change practice norms for using 5As.
Enabling factors			
Negative	Extra work and limited time	<p>“Um, would I like more paperwork? Probably not”</p> <p>“Clinicians oftentimes push back on these kinds of things . . . we’re checking boxes because we have to”</p> <p>“We don’t have the bandwidth to sit down for a long-structured conversation about smoking cessation”</p>	Streamline documentation, staff support. Utilize EMR prompts and scripts to promote efficiency and 5A effectiveness
		Financial	<p>“It’s not a high revenue generating thing. And that’s a tough sell at a community hospital site”</p> <p>“The price of nicotine replacement therapy is a huge barrier to people quitting smoking”</p>
	Skills, supports	“Just saying to somebody, go ahead and quit, although at least that’s something, if we had better resources, the patients would be more successful.”	Train clinicians, set norms, increase system resources
Mixed	The EMR	<p>“I think that the clinical workflow is the key element”</p> <p>“Physicians in general and in our institution specifically are struggling with a lot of documentation requirements that while they’re all important, they add up.”</p> <p>“Very rarely do I open the electronic record when I’m with the patient. It’s a clinical distance from the patient”</p>	Design shortcuts in EMR to help with documentation, such as smart phrases
Reinforcing factors			
Positive	Policy-level Influences	<p>“Offering smoking cessation counseling and services is actually mandated by Medicare”</p> <p>“If it’s not a mandate and tied to a metric, it’s not going to. . . it probably won’t happen”</p>	Educate clinicians on emerging NCI policies
	Seeing successful quit attempts	“Every smoker, every visit, I ask them to quit and I offer them pharmacological support and a referral to the smoking program at Jefferson. . . And my patients get sick of hearing this. Cause I absolutely hound them. And some people actually do quit”	Cessation programs can give providers feedback on successful quit attempts
	Documentation as a tool to promote group behaviors, cessation culture	“but (5As as required EMR elements) would be great, any patient element that can help prevention is good. It would show unification of the team, we’re all on the same page, and the safety net is broader than just one person.”	Use social influence to create norms, cessation counseling as a standard of care
Negative	Reactions from patients	“Doc, I think it’s really rude of you to talk to me about my smoking. I smoke. I like smoking. I’ve been doing it all my life. I have no intention of stopping. Please don’t mention it again”	Educate about addiction, timelines for cessation, rates of relapse. Build skills in rapid 5A assessment, how to respond if patient is not ready.
	Inappropriate referrals	“It’s. . . burdensome on us as counselors. . . all these referrals for patients who really aren’t. . . ready to change”	Ensure 5As are used correctly, to refer patients only when ready for referral.
	Lack of feedback	“I’ve referred patients there. . . and rarely get any feedback from those programs at all”	Add referral outcomes to EMR, integrate cessation staff into clinical care and treatment meetings.

“Well, people are dying from cancers, so why . . . push it anymore and ruin the chances that they’re having with the positive outcomes of the chemo and stuff.” (Man, 59, Lymphoma)

However, themes of fatalism, as well as very poignant expressions of isolation, stigma and self-blame for their cancer, suggest that introducing cessation during treatment may require targeted counseling for many cancer patients, to address these significant psychological barriers and build self-efficacy in regard to behavior change efforts.

“I’m a dying breed, literally. . . Parties it used to be you plus eight, ten people (smoking). Now I’m out there alone. I’m the asshole who smokes, and the funny thing is, I’m the asshole with cancer.” (Man, 63, Head and Neck)

Some patients felt there was a causal link between smoking and cancer incidence or outcomes, but others were unsure. Similarly, patients did not uniformly remember hearing tailored cessation recommendations, based on benefit to their own cancer treatment or survivorship. Overall, when asked to rate from 1 to 10 their desire to quit smoking, 9 of the 13 patients stated “10.” Patients’ reasons for choosing lower numbers included changing levels of motivation (“I say 5 because some days I’m 10 and some I’m 0”) as well as futility in the face of their current health situation.

Enabling Influences

Patient discussions of factors which enable or hinder engagement with cessation included mention of the benefits of treatment as a period where smoking is often not possible, such as during inpatient hospitalizations or treatment.

“When I was first diagnosed, I was in the hospital. . . , so the two weeks being in there and not smoking was a good thing.” (Woman, 63, Pancreas)

This suggests that introducing cessation as a structured element of the pre-treatment planning process could leverage this initial smoke-free window and prevent relapse. Patients also reported personal experiences with many of the recognized structural barriers to cessation services uptake, including financial barriers, as well as logistical issues with referrals and follow-up. Experiences with different pharmacological aids were mixed, and some patients reported only being offered access to a single type, without being able to explore the range of options available.

“I tried the patch. I just don’t like how it made me feel so I couldn’t get used to using it” (Man, 37, Lymphoma)

Reinforcing Influences

Reinforcing influences on cessation efforts included awareness of the social stigma related to smoking, and a sense that it was hard to have others aware of their tobacco use.

“I couldn’t justify anything anymore. You know, I would be embarrassed to tell anybody I smoked, you know?” (Man, 63, Lung and Brain)

In addition, some patients felt they had observed some improvement in their health with reduction in smoking. Negative reinforcement for cessation included the pervasive exposure to smoking in their daily lives, including among family and friends who smoke, as well as their reliance on smoking as a habitual coping mechanism when experiencing stress. Reinforcing influences that were perceived to have both positive and negative impact included managing expectations and reactions from those close to them during the cessation process and feeling stigma and guilt about incomplete cessation or relapse, especially as someone coping with cancer.

“It’s the guilt that you want to stop. People are so proud of you, say so many nice things about you. In secret you’re like this. You’re smoking.” (Man, 56, Prostate)

Thus, mixed reinforcing influences were seen as having both internal and external causes.

Predisposing Influences

Professional stakeholders within the cancer center expressed a diversity of perspectives about smoking cessation in the context of cancer treatment. Predisposing themes included knowledge of the evidence base for cessation in terms of morbidity during treatment. In addition, some providers believed in the psychological benefit of agency—giving patients “something they can do” in the face of a cancer diagnosis and loss of control over many aspects of their health. Additionally, some providers described their cessation approach as a series of stepwise conversations, tailored to the patient response.

“I feel the mark at first isn’t will the patient quit; it’s have I created an entryway to talk about it? Over time, you have to keep building on it.”

However, many providers mentioned either their own or their colleagues’ skepticism about patients’ ability to overcome tobacco addiction, and the phrase “therapeutic nihilism” was used to describe colleagues who felt promoting cessation was

not an effective use of their efforts. Similarly, stakeholders felt that across the cancer treatment team, some clinicians would be less motivated to prioritize cessation during patient encounters, in part because other aspects of care would be seen as more central to their clinical mandate.

“I think a lot of oncologists are focused on, you know treating the cancer, finding a cure for cancer.”

In addition, some providers were unsure that all of their colleagues uniformly knew or perhaps valued the therapeutic benefits of cessation across all cancer sites, especially for patients facing late-stage cancers, and thus, overall, cancer center clinicians were not uniformly predisposed to engage with cessation.

Enabling Factors

Stakeholders could not identify any positive factors, within the current care system at the cancer center, which would enable cessation support for patients. Constraints of time within the clinical encounter were commonly cited barriers.

“We don’t have the bandwidth to sit down for a long, structured conversation about smoking cessation.”

Even when the structured and rapid nature of the 5As protocol was explained, many clinicians felt that any mandated cessation counseling within the patient visit would present an additional burden in terms of time and focus, and potentially interfere with more important types of care.

In addition, time versus revenue trade-offs were mentioned, with cessation conversations seen by some as producing less revenue compared to procedure-based care. Other disincentives to cessation referrals included the belief that cessation aids were unaffordable to many of the center’s patients, as well as the additional documentation that might be part of the 5As process.

“Physicians in general and in our institution specifically are struggling with a lot of documentation requirements that, while they’re all important, they add up.”

Overall, the current context of cancer care was seen as poorly enabling clinicians to add cessation, even if seen as important.

Reinforcing Factors

Factors that were viewed as key to reinforcing routine cessation counseling within the clinical visit included policy-level mandates from payers such as Medicare, and accreditation bodies such as the National Cancer Institute.

Within the treatment setting, EMR prompts and documentation for 5As discussions was viewed as a positive reinforcer of cessation across multiple clinical areas and care team members, to keep everyone “on the same page.”

“but (5As as required EMR elements) would be great, any patient element that can help prevention is good. It would show unification of the team, we’re all on the same page, and the safety net is broader than just one person.”

On a more personal level, clinicians who had counseled patients and seen successful cessation felt this reinforced their efforts.

“Every smoker, every visit, I ask them to quit and I offer them pharmacological support and a referral to the smoking program at Jefferson. . . And my patients get sick of hearing this. Cause I absolutely hound them. And some people actually do quit.”

In contrast, providers who did not feel successful in promoting cessation recounted patients who reactively negatively to such communications.

“Doc, I think it’s really rude of you to talk to me about my smoking. I smoke. I like smoking. I’ve been doing it all my life. I have no intention of stopping. Please don’t mention it again.”

The lack of smooth communications between clinicians and cessation program staff was presented in contrasting perspectives. Clinicians felt that a lack of follow-up communication from the cessation program left them wondering if referring patients was worth their efforts, while cessation staff felt clinicians often referred patients without first determining the patients’ readiness to engage in the program, which wasted resources.

Discussion

There is a strong case for consistent inclusion of evidence-based tobacco use treatment in the cancer care setting, which is based on 2 principles.⁴¹ The first is that continued smoking after cancer diagnosis does significant harm to patients by affecting treatment efficacy and causing increased morbidity and mortality from both cancer and non-cancer related causes. The second is that smoking cessation has the potential to markedly decrease those harms, which improves cancer prognosis and overall health.

Although this ever-increasing evidence on the benefits of cessation as a strategy to improve cancer survivorship is compelling, our results suggest that it has not had uniform impact on either provider or patient behaviors. Further, prior to the C3I initiative, it was not uniformly integrated into the standard of care at this cancer center, despite the high burden of tobacco addiction within the catchment area.

Patient-Related Findings

Our results strongly illustrate the challenges faced when promoting smoking cessation among persons with cancer. The cancer treatment population has been shown to have higher readiness to quit and greater number of quit attempts than smokers in the general population,⁴² as shown in our study, where many of the patient respondents chose “10” when asked to rate their desire to stop smoking on a scale of 1 to 10.

However, cancer patients who smoke also typically have greater nicotine dependence, requiring more intensive interventions, and therefore both patient and provider expectations must be realistically based on population-specific quit rates.⁴³⁻⁴⁵ Our mostly older, African-American, and high school educated respondents described beginning to smoke in their teens or even earlier, and acknowledged the role of unfiltered and mentholated tobacco products. Policy level strategies, such as the ban on menthol, will offer additional challenges, but also cessation opportunities for African American smokers, including cancer patients, and tailored programming could leverage this change in the tobacco product environment.⁴⁶

In addition to greater nicotine dependence, cancer patients attempting to reduce or stop tobacco use are often coping with significant physical, economic and psychosocial hardships during cancer treatment.³⁹ This suggests that cessation programs within the cancer care settings should not simply provide standard services, but rather create supports and goals relevant to smokers and their families at each stage of cancer treatment and survivorship, by acknowledging that patient goals across this trajectory vary widely. Discussions with patients should identify their specific benefits from cessation, which may include recurrence-free survival, but alternatively for some patients could prioritize quality-of-life goals such as decreases in pain or even creating a smoke-free home environment where they can be with non-smoking family and friends.

For cancer patients who are willing to attempt tobacco use reduction or cessation, cancer centers must use strategies to reduce logistical barriers, including referral pathways, as well as access to pharmacological aids and cessation activities. At the institutional level, using opt-out (versus opt-in) referral strategies has been shown to increase patient engagement with cessation.^{47,48} Although resources such as quit lines and text messaging reminders have been proven effective in the broader population of smokers, more research is needed as to how diverse groups of cancer patients, who are typically older and less affluent, respond to these cessation tools. From a systems perspective, investing additional resources for patients attempting cessation may be cost effective for providers and insurers, as it has been estimated that smoking after diagnosis increases the cost of cancer treatment by \$11 000 per patient.⁴⁹ These higher costs may also impact patients; for example, the Affordable Care Act allows insurers to charge up to 50% higher premiums to those who smoke.⁵⁰

Provider-Related Findings

The perspectives shared by clinician respondents in this formative work reflect patterns reported elsewhere,²⁸ and identify clear areas for improvement. Although the majority of these respondents did recognize that smoking reduction or cessation could benefit their patients, many anticipated low interest among patients, and poor success rates among those willing to attempt cessation. No clinician respondents, even self-described cessation “champions,” had received formal training in, or even recalled hearing of, evidence-based approaches such as the “5As.” This reflects findings in the Public Health Service (PHS) Clinical Practice Guideline, Treating Tobacco Use and Dependence: 2008 Update,²⁸ reporting that less than 30% of cancer care clinicians report adequate training in cessation interventions. Once described, many still felt that more immediate needs such as treatment decisions or managing side-effects should take priority during typically complex and time-pressured oncology visits.

Prevention counseling for patients from trusted clinicians has been demonstrated to be effective for population health, but in the clinical settings it has high short-term costs, with delayed and uncertain returns in any given patient.⁵¹ Even in the primary care setting where a single provider holds the responsibility for prevention counseling about physical activity, nutrition, tobacco and alcohol use, patients do not universally receive such guidance. In contrast, for cancer patients, this responsibility is diffused, as patients across the cancer care continuum interact with clinicians in many settings. Ideally, each encounter offers an opportunity to integrate smoking cessation conversation and treatment in cancer care, but in practice, diffusion of this responsibility may reduce prioritization of cessation by each different clinical group.

At the systems level, clinicians had mixed views of using the electronic medical record (EMR) and other automated tools to support cessation care, as in their experience, implementation of EMR systems overall within clinical settings has been burdensome, and additional elements would add to this burden. The C3I initiative, however, included technical assistance to funded cancer centers to create new EMR capacity: for identifying and flagging patients who used tobacco, implementing an E-referral process for referring these patients to cessation services, and providing clinicians with feedback on referral outcomes.³⁰ This “closed loop” functionality enhances communication across the cessation treatment team.⁵² At the organizational level, these tracking systems also allow for metrics to be measured, with the goal of demonstrating improvement over time. In the first cohort of C3I centers, centers adding E-referral capacity observed a substantial increase in the number of patients who were screened for smoking status. At our cancer center, new EMR cessation referral pathways allow for identification of patients, real-time referral to cessation services, and the ability to monitor impact. Since its rollout in July 2021,

more than 150 cancer center patients have been referred to and treated in the tobacco cessation program, with 100 of those patients showing a reduction in tobacco use and 20% reporting that they have quit smoking entirely. These numbers represent a substantial increase from prior cessation program use.

Finally, we found that providers varied widely in their own personal experiences with cessation counseling with their patients. National data suggests that clinicians trained more recently are more knowledgeable about cessation, and more confident in their ability to discuss cessation with patients.^{53,54} These clinicians were also more likely than others to understand and support patients during staged cessation attempts, valuing actions such as planning for quitting, reducing use gradually over time, and creating smoke-free lifestyles, such as smoke-free homes. This mirrors our data, where patients experienced uneven responses from different clinicians for their efforts to reduce tobacco use prior to complete cessation.

Overall, specialist clinicians have been found to be less likely to discuss cessation with patients than primary care providers.^{54,55} Studies have also found gender differences in preventive counseling, with female clinicians more likely than their male counterparts to counsel patients on cessation.⁵³ Given the importance of norms within clinician communities, in coordination with the roll-out of structural supports such as E-referral systems, it is important to identify and leverage influential “champions” to promote cessation as standard of care within the culture of the clinical community.

Limitations and Areas for Future Work

There are strengths and limitations to this research. The inquiry was formative, with the goal of exploring and understanding the experience and perspectives of clinicians and patients within one care setting. Although our findings do align with those from larger studies, they may also reflect the specific relationships between clinicians and patients in our predominantly African-American urban cancer center setting, with high burdens of poverty and tobacco addiction. Adherence to care, including cessation services, is more challenging for poor patients, and challenges to cessation success are substantial. Our purposive sample approach was successful in recruiting diverse samples of participants, both clinician and patient, but it was not exhaustive in capturing all possible perspectives or type of stakeholder, nor was it sufficient to compare across cancer types, treatment types, or clinician groups. Although we found both respondent groups to be quite open in sharing their perspectives, it is also possible that our purpose on behalf of the cancer center influenced disclosure. A strength of our study was the length of the in-depth interviews conducted with patients and stakeholders, which allowed us to elucidate barriers and

facilitators for cessation that larger surveys may miss. Additionally, as we consider the perspective of both patients and providers, we believe we are able to provide realistic actionable recommendations to improve the cessation landscape. Lastly, this work was completed prior to the launch of our C3I program, which has substantially strengthened our cessation infrastructure, including integration into the EMR. Thus, it would be important to continue to use qualitative methods, in addition to structured metrics, to monitor changes in clinician and patient experiences related to cessation services going forward.

Conclusions

Our findings suggest that, despite the large amount of evidence supporting cessation services during cancer care, numerous barriers exist for patients to receive effective comprehensive cessation care, and successfully quit during the cancer treatment process. Specifically, providers would benefit from education on how to talk to patients about cessation and customize cessation to each patient; patients would benefit from more comprehensive cessation care that addresses the psychological aspects of cessation rather than just the physical. Our findings can inform clinicians and program and policy makers of areas for improvement when designing comprehensive cessation programs at cancer centers.

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