"Quitting Smoking Will Benefit Your Health": The Evolution of Clinician Messaging to Encourage Tobacco Cessation

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Executive Summary

Illnesses that are caused by smoking remain as the world's leading cause of preventable death. Smoking and tobacco use make up approximately 30% of all cancer deaths and nearly 90% of lung cancer deaths. Thus, improving smoking cessation interventions is crucial to reduce tobacco use and assist in minimizing the burden of cancer and other diseases in the United States (US). This review focuses on the existing research on framed messages to promote smoking cessation. Consistent with the tenets of Prospect Theory and recent meta-analysis, gain-framed messages emphasizing the benefits of quitting appear to be preferable when working with adult patients who smoke tobacco products. The evidence also suggests that moderators of treatment should guide framed statements made to patients. Meta-analyses have provided consistent moderators of treatment such as need for cognition, but future studies should further define the specific framed interventions that would be most helpful for sub-groups of smokers. In conclusion, instead of using loss-framed statements like "Smoking will harm your health by causing problems like lung and other cancers, heart disease, and stroke," as a general rule, physicians should use gain-framed statements like "Quitting smoking will benefit your health by preventing problems like lung and other cancers, heart disease, and stroke."

Introduction

Diseases caused in whole or in part from smoking continue to be the world's most preventable cause of death (1). Tobacco consumption accounts for approximately 30% of all cancer deaths and nearly 90% of lung cancer deaths, with recent estimates as high as approximately 174,000 cancer deaths from tobacco use per year (2). Moreover, smoking is related to cancers in 18 unique human cancer sites, and it is responsible for approximately 1 in 5 deaths in the United States (US) (3, 4). Despite these facts, recent estimates show that smoking is still a prevalent behavior with 18% of Americans currently smoking cigarettes, with a small decrease in prevalence from 2009 (20.6%) to 2012 (18.0%) (5). To combat cancer effectively, these smoking statistics must continue to decrease and the effectiveness

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of current smoking cessation efforts needs to be improved. Attaining and maintaining abstinence from tobacco consumption is crucial. Indeed, research has shown that tobacco-related morbidity and mortality risk for smokers is reduced by tobacco cessation at all ages including those over 80 years old (6), and recent estimates have shown that smokers who quit before the age of 40 reduce their risk of smoking-related mortality by 90% (7).

The US Public Health Service's (PHS) Clinical Practice Guideline, Treating Tobacco Use and Dependence, provides evidence for use of the 5 "A's" to encourage smoking cessation among patients who smoke (1). The 5 "A's" are the 5 major components of a brief smoking cessation intervention in the primary care setting: (A1) Ask about tobacco use, (A2) Advise to quit, (A3) Assess willingness to quit, (A4) Assist in quit attempt, and (A5) Arrange follow-up. The PHS guideline suggests that A1 to A3 need to be delivered to all tobacco users, regardless of his or her willingness to quit (1). Thus, all health care providers should be asking whether a patient is a smoker and should advise them that they need to quit. Although the 5 "A's" model is at times reduced to a 3-step model of: 1) Ask, 2) Advise and 3) Refer, or "A, A, R," with referral to a tobacco treatment service, the Ask, Advise, Refer model does not have the evidence basis of the 5 "A's" model (8).

A robust literature demonstrates that even brief advice from a health care provider encourages smoking cessation. A recent meta-analysis (9) revealed that brief advice versus no advice (or usual care) resulted in a significant increase in the rate of quitting (relative risk [RR] 1.66, 95% confidence interval [CI] 1.42 – 1.94). In addition, in a study assessing the effects of opportunistic brief physician advice to stop smoking and offer of assistance, researchers found that advice to quit on medical grounds increased the frequency of quit attempts when compared to no intervention, but this effect was greater with behavioral support for cessation or offering nicotine replacement therapy (NRT) (10). Unfortunately, many physicians may not have the time or training to offer assistance (A4) in a quit attempt. Thus, maximizing the effectiveness of advice to quit smoking may be one way to improve the outcomes of smokers reached through their physicians.

Although the PHS guidelines instruct physicians to provide advice and utilize the 5 "A's," many physicians may be missing opportunities to intervene. Indeed, a study of direct observations of physician-patient encounters in primary care practices found that tobacco was discussed during 21% (633/2963) of encounters (11). In this study, discussion of the topic of tobacco use was more common among practices that had a standard form that recorded tobacco status, showing that institution of practice/system level interventions can increase the frequency of tobacco interventions provided by primary care providers. In another survey study of health professionals' cessation practices, Tong and colleagues found that many primary care physicians report asking (97.7%) and advising (94.9%) about smoking but fewer report assessing smokers' interest (84.8%), assisting (63.7%), and arranging follow-up (23.1%) (12). Data from the 2000, 2005, and 2010 Cancer Control Supplement of the National Health Interview Survey showed that the percentage of smokers who received cessation advice from a healthcare provider has been stagnant, with the most recent report showing the lowest level of advice giving: 53.3% in 2000, 58.9% in 2005, and 50.7% in 2010 (13). This is unfortunate, given that physician training can lead to considerable increases in use of the 5 "A's." For instance, after training a group of community primary care physicians, Caplan and colleagues found significant improvements in implementation of all 5 "A's" from pre- to post-intervention (14).

Tobacco assessment and intervention among oncologists appears to be low as well. A recent large survey of approximately 1,500 members of the International Association for the Study of Lung Cancer (IASLC) assessed member practice patterns, perceptions, and barriers to implementing tobacco cessation for thoracic cancer patients (15). Ninety percent of

respondents reported that they believed tobacco affects cancer outcome and cessation of tobacco needs to be a standard part of oncology care. However, 80% reported advising patients that they should stop their tobacco use, and only 40% reported that they discussed smoking cessation medications or provided cessation support. Survey respondents indicated clinicians need additional training in tobacco interventions, but the dominant barriers to provision of cessation support were a perceived inability to assist patients with smoking cessation and patient resistance to tobacco interventions (15). This is regrettable, given that it is definitely not "too late" for cancer patients who smoke, and a recent review has illustrated that there are several important reasons for cancer patients to quit smoking (e.g., improvement of cancer outcomes, reduced risk of future second primary tumors, and increased survival) (8).

The PHS guideline provides a summary of the content that should be provided for each "A" in the 5 "A's" model. However, the guideline simply states that Advice (A2) to quit smoking should be delivered in a "clear, strong and personalized manner" (1). Some examples are provided (e.g., "Occasional or light smoking is still dangerous," and "As your clinician, I need you to know that quitting smoking is the most important thing you can do to protect your health now and in the future."). The main point of these messages is "You should quit smoking," but the content of the message varies greatly. Some messages discuss long-term health *benefits* of quitting whereas others refer to the health *costs* associated with continuous use. Is there an optimal way to deliver advice to quit smoking that we should be capitalizing on in order to maximize the efficacy of brief advice?

An investigation of the literature reveals relatively few studies have examined the content of advice messages to encourage smoking cessation. Those that have evaluated message content have focused on patient preferences for message type. For example, Gemmell and DiClemente (16) evaluated student preferences for motivational advice to quit smoking versus direct advice via 2 written vignettes. Participants rated the motivational advice vignette as significantly more favorable compared to the direct advice vignette on all assessed dimensions (global satisfaction, general satisfaction, physician affective style, physician technical style, and physician communication style). One of the few studies that assessed the content of physician messages was conducted by Simmons and colleagues (17). In this study, in-depth interviews with 20 lung and head and neck cancer patients and 11 health care providers were conducted to assess the content of messages delivered in an oncology setting. Qualitative analyses revealed that health care providers typically emphasized long-term risks of continued smoking in their interactions with patients and recommendations for intervention content, but patients expressed a preference for a balance between risks and benefits. For example, with regard to smoking cessation messages one cancer patient stated that: "You know you have cancer, so you can't scare us with 'you are going to get cancer.' You need to be positive and frame it in a positive way." (report from an abstinent patient, p. 402) (17).

In summary, although evidence shows that adherence to the 5 "A's" model of tobacco intervention leads to smoking cessation, many health care providers would like training and guidance regarding delivery of the 5 "A's" model. Thus, a critical step in curbing smoking rates is ensuring that health care providers receive the training they want and need. Effort also must be taken to ensure that the counseling delivered through the 5 "A's" approach is optimally effective. Mounting research evidence suggests that including appropriately framed messages may be one approach to enhancing the impact of smoking cessation interventions. Below we review this evidence base and consider how this research may inform the types of messages that health care providers deliver to patients who smoke.

Message framing: Definition and theoretical framework

Message framing refers to the emphasis of a message on the benefits of engaging in a behavior (gain-framed) or the consequences of failing to engage in a behavior (loss-framed). As such, a gain-framed smoking cessation message emphasizes the benefits of quitting: *If you quit smoking you will reduce your risk of lung cancer.* A loss-framed smoking cessation message emphasizes the consequences of continuing to smoke: *If you continue to smoke your risk of lung cancer will continue to increase.* Although these messages address the same topic – smoking and lung cancer –they can be differentially effective in changing smokers' willingness to quit and their cessation behaviors as a result of their message frame.

Rothman and Salovey proposed a framework specifying *when* to apply gain versus loss framing in health promotion practice (18). Their framework is based upon tenets of Prospect Theory -- an economic theory describing decision-making patterns under circumstances of high versus low risk (19). According to Prospect Theory, individuals are more willing to accept risks and uncertain outcomes when considering the potential negative consequences or losses associated with a choice. Conversely, people tend to avoid risk and to prefer certain outcomes when considering the benefits or gains associated with a decision (19).

Applying the tenets of Prospect Theory to health messaging, Rothman and Salovey (18) proposed that: a) loss-framed messages persuade individuals to engage in behaviors that are considered to have risky or uncertain outcomes, and b) gain-framed messages convince individuals to engage in behaviors that are characterized as having risk-averse or certain outcomes. Further, they suggested that considering the function of the behavior being promoted (i.e., detection vs. prevention) could serve as a useful guide for characterizing outcomes as risky or risk-averse. Specifically, they proposed that detection behaviors (e.g., cancer screening) are best promoted using loss-framed messages because behaviors in this category have uncertain outcomes and thus typically are perceived as risky (e.g., a screening patient could find out that they have cancer). Conversely, they proposed that prevention behaviors (e.g., quitting smoking) are best persuaded using gain-framed messages because behaviors in this category have relatively certain outcomes and thus typically are perceived as risk averse (e.g., risk for cancer is greatly reduced).

The categorical distinction between prevention and detection behaviors has proven to be a relatively useful guideline for making predictions about the optimal framing of health messages (20). Although a number of studies support the prevention/detection framing guideline, several have failed to support these predictions (21, 22). In some cases null findings are the result of study limitations (e.g., small sample sizes, an inadequate dose of information). It also may be that factors other than behavioral function are influencing individuals' receptivity to gain- versus loss-framed messages. For example, a review of 50 message-framing studies determined that stable dispositional characteristics of the message recipient and participants' prior beliefs about the behavior moderate framing effects (23). In this review, 23 moderators were considered. However, a consistent pattern of findings only emerged for a selection of moderators including: people's ambivalence towards behavior change, their motivational orientation (i.e., regulatory focus, either prevention [focus emphasizes safety, responsibility, and security needs] or promotion [focus emphasizes hopes, accomplishments, and advancement needs]), their confidence to change their behavior (i.e., self-efficacy), and their thinking style (i.e., need for cognition). Other factors such as gender (24) and past behavior also have emerged as moderators.

As a result of this accumulating evidence, a second approach to framing messages has gained momentum (25, 26). Rather than specifying *when* to deliver a gain- versus loss-framed message, this approach specifies *to whom* a gain- versus loss-framed message should be delivered. Rather than matching the message frame to the behavioral function

(prevention/detection), the message is matched to characteristics of the individual. When the message is effectively matched to the individual, it is thought that the individual may feel that the message "fits" and in turn will find the information more relevant. When individuals find information relevant they are more likely to attend to it and act upon it (27). This emerging approach of matching the message to the recipient and the original approach of matching messages to the behavioral function both hold promise for enhancing the impact of smoking cessation messages.

Smoking cessation and message framing

Matching messages to prevention versus detection behaviors

Because smoking cessation is a prevention behavior (i.e., quitting smoking has relatively certain outcomes), Rothman and Salovey predict that gain-framed messages should be most effective in this context. Indeed, a growing body of research, including recent meta-analysis (20), suggests that gain-framed messages may be more effective than loss-framed or non-framed (neutral) messages for encouraging smoking cessation (20). For example, using video messages that included framed visual images (gain vs. loss) and framed auditory voiceover content (gain vs. loss; 4 message conditions total), Schneider and colleagues demonstrated that gain-framed messages about quitting smoking shifted smoking-related beliefs, attitudes, and behaviors in the direction of cessation (28). Gain-framed messages, in both audio and visual formats, led to significant reductions in amount of smoking as compared to loss-framed messages. Similar findings were observed in a randomized, controlled trial (RCT) examining the influence of framed messages on rates of smoking cessation (29). Toll and colleagues tested the impact of video and print messages encouraging smoking cessation that emphasized either the benefits of quitting (gain-framed) or the costs of continuing to smoke (loss-framed). In addition, all participants received open label sustained-release bupropion (300 mg/day) for 7 weeks. Among the participants who completed the entire course of treatment, rates of continuous abstinence were significantly higher in the gain-framed condition as compared with the loss-framed condition. Overall, these 2 studies demonstrated that gain-framed messages may be more persuasive than loss-framed messages in promoting early success in smoking cessation (28, 29); thus, matching the frame of a message to the behavioral function may indeed be effective in the context of smoking cessation.

Counseling for smoking cessation delivered via Quitlines (i.e., telephone based state sponsored treatment programs) represents an ideal opportunity to provide smokers who are seeking assistance to quit with framed messages because framed messages can be delivered verbally (by phone) and in print materials, both of which are common modalities for delivery of Quitline services. To date, however, Quitlines have not typically employed systematic framing of cessation-related messages. In fact, Latimer and colleagues conducted a content analysis of all New York State Smoker's Quitline (NYSSQL) printed materials and 12 Quitline service calls (30) and found that 10.2% of the tested messages were gain-framed, 1.7% were loss-framed, and 88.1% were not framed. Given the high percentage of non-framed messages, the authors revealed a missed opportunity for providing gain-framed messages within Quitline services (30). Incorporating gain-framed messages into Quitline service calls, however, requires Quitline counselors (or "coaches") to deliver effective framed messages. To determine if counselors could be trained to do so and if those messages would, in turn, actually be more effective for encouraging cessation, Toll and colleagues randomly assigned 28 counselors working at the NYSSQL to deliver either gain-framed or standard-care counseling to 2,032 callers to the NYSSQL (31). Indeed, an analysis of 400 calls indicated that counselors providing gain-framed counseling used gain-framed statements significantly more frequently than those providing standard-care counseling. In addition, gain-framed counseling was associated with a significantly higher rate of

abstinence among Quitline callers at the 2-week follow-up but not at the 3-month follow-up. Thus, not only is there evidence that gain-framed messages are more effective for encouraging smoking cessation, but there also is evidence that these messages can be translated into the actual practice of Quitline services to improve quit rates.

Matching messages to individual characteristics

Although the research conducted to date supports an overall advantage for gain-framed messages to promote smoking cessation, research has revealed a number of variables that moderate (i.e., identify specific subgroups) the relative influence of gain- and loss-framed messages on smoking behavior and other cessation-related variables. Thus, considering "*to whom*" a framed message is delivered may be important for determining the impact the message will have on the recipient's subsequent thoughts and behaviors. For example, in a secondary analysis of the data from the RCT conducted by Toll and colleagues, risk perceptions and gender were found to influence smoking-related cognitions and behavior as well as the influence of framed messages on cessation (24). The findings demonstrated that: a) women reported more perceived risks associated with cessation than men, b) participants who anticipated high risks associated with quitting smoking reported fewer days to relapse, and c) compared to women in the loss-framed condition, women in the gain-framed condition who reported low perceived risks of cessation had a greater number of days to relapse. Thus, gain-framed messages may be more effective among women who perceive fewer risks associated with cessation. Need for cognition (i.e., the tendency to "expend effort on information acquisition, reasoning, and problem solving" p. 199) (27) also influences the degree to which framed messages impact intentions to quit smoking (32) such that individuals who have reported a lower need for cognition have demonstrated greater intention to quit after reading a gain-framed message than after reading a loss-framed message.

Another moderator of framing effects is a smoker's stage of change toward smoking cessation (33). Cornacchione and Smith found that among smokers in the contemplations stage, gain-framed messages were most influential at encouraging progression to the preparation stage providing preliminary evidence that gain- and loss-framed smoking cessation messages may be differentially effective for smokers at different stages of change (33).

A secondary analysis of data from the Quitline-based RCT conducted by Toll and colleagues (31) identified outcome expectancies, gender, and self-confidence as additional moderators of framed messages for smoking cessation (34). Specifically, outcome expectancies moderated the effects of framed messages among men but not among women; men in the gain-framed counseling condition who had positive outcome expectancies were more likely to quit and had more confidence in their ability to quit or to remain abstinent than men who were uncertain of the positive outcome of smoking cessation, and self-confidence was the mechanism through which the gain-framed intervention exerted its effects on quit status among men.

Perhaps the most widely-studied moderator of framing effects in the smoking cessation literature is nicotine dependence. For example, Fucito and colleagues demonstrated that smokers' level of nicotine dependence moderates the impact of framed messages on smoking abstinence (35). This analysis of treatment-seeking smokers revealed that among highly-dependent smokers, gain-framed messages were associated with higher levels of smoking abstinence during and post-treatment than were loss-framed messages. Among smokers with lower levels of nicotine dependence there was no differential effect of gain- versus loss-framed messages. Some studies have reported different effects based on level of nicotine dependence and intentions to quit smoking. Notably, these studies were not with

treatment-seeking smokers. For example, Moorman and van den Putte (36) conducted a study with smokers who initially reported low likelihood to quit smoking in the next 3 months (mean of 2.85 on a scale from 1 [unlikely] to 7 [very likely] for intention to quit). These investigators demonstrated that among these smokers, intentions to quit smoking and level of nicotine dependence jointly influenced the degree to which positively- and negatively-framed message influenced intentions, attitudes, and perceived behavioral control related to smoking cessation. Specifically, when nicotine dependence and intentions to quit were both high, a negative frame tended to work best. Conversely, a positive frame was more effective when nicotine dependence or quitting intention was low. Of note, this study did not measure actual smoking behavior. A second study of 188 undergraduate students (only 46 of whom were non-treatment seeking smokers) showed somewhat similar effects. This mixed sample of non-smokers and smokers were assigned randomly to view either positively- or negatively-framed anti-smoking public service announcements (37). The results revealed that both nicotine dependence and smoking involvement moderated the effects of the framed public service announcements such that the negatively-framed messages were viewed with a more favorable attitude for smokers with high nicotine dependence or high smoking involvement and positively-framed messages were viewed with a more favorable attitude for smokers with lower levels of nicotine dependence or smoking involvement. Thus, the sample differences (treatment seeking versus non-treatment seeking smokers) and differences in measurement (behaviors versus intentions) between these 3 studies may account for the different outcomes.

Additional studies of message framing in Quitline services have identified moderators of framing effects in this context. First, in the study by Toll and colleagues (31), among callers who continued to smoke at the 3-month follow-up, those who reported higher nicotine dependence scores were more likely to report smoking more cigarettes per day; importantly, this effect was greater in response to standard-care messages as compared to gain-framed messages (38). Smokers with higher dependence scores who received standard-care messages also were less likely to report use of nicotine medications compared with less dependent smokers, whereas there was no difference in the use of nicotine medication among those who received gain-framed messages. Again, it should be noted that this study analyzed effects of message framing on actual smoking behaviors for treatment seeking smokers, whereas the other studies with different findings measured non-treatment seeking smokers' attitudes and intentions, which might or might not lead to behavioral changes. Nevertheless, because the findings regarding nicotine dependence as a moderator of framing effects have been mixed, more research is needed before recommendations can be made regarding "*to whom*" to use gain- and loss-framed messages in practice as related to level of nicotine dependence.

Finally, in a study testing gain- versus loss-framed messages to encourage calls to a Quitline, researchers found that heaviness of smoking moderated the effects of framing on call rates. Specifically, light smokers exposed to the positive-content (gain-framed) message called on average 2.2 times more often than those exposed to the negative-content (loss-framed) message. The authors concluded that short-term smoking cessation campaigns that include positively-framed messages and focus on issues pertaining to individuals' daily routine could be effective for encouraging cessation among light smokers (39).

Taken together, these studies suggest that it may be important to consider the individual characteristics of the message recipient when determining whether to employ a gain- or a loss-framed message. Because there are many potential moderating variables, more research is needed before practical guidelines based on this "*to whom*" approach can be established. In summary from these moderator studies, the general pattern that emerges is that gain-framed messages are always as effective as loss-framed and standard-care messages and in

some cases more effective than standard-care and loss-framed messages. Therefore, when delivering messages about tobacco use to adults, it seems prudent for physicians to deliver gain-framed smoking cessation messages.

Suggestions for framing advice and messages to patients

There appears to be 2 ways that physicians can approach framing smoking cessation messages to patients. The "*When*" approach may be easier to implement in large group contexts or at a systems level (e.g., gain-framed videos on a cancer center's website, gain-framed smoking cessation materials and posters for patients in waiting rooms). The "*To Whom*" approach would allow for more nuanced and potentially more relevant delivery of framed messages, but the drawback is the need for the provider to have information about the message recipients before meeting with them. It seems that when this information is available, it should be used to deliver messages relevant to the patient who smokes. Although this might be time consuming if conducted on an individual basis, an automated system could be used in which the patient completes a pre-survey assessing moderators and the program generates an output of tailored framed messages. Given the move toward Electronic Medical Records and programming of pre-populated patient information, this is becoming a more practical method of personalizing messages in clinical medicine. Examples of both general framed messages and tailored messages are presented in Table 1, with the gain-framed and loss-framed messages side by side for comparison. Physician recommendations for use of gain-framed messages to promote smoking cessation with cancer patients are presented in Table 2. There are many specific benefits of smoking cessation for cancer patients (40) that physicians can highlight to maximize promotion of quitting behaviors among their patients. Based on the evidence to date, physician messages encouraging smoking cessation for adults should be gain-framed, and if possible, tailored to specific variables about the patient (e.g., demographic characteristics, smoking history, self-efficacy, etc).

Conclusions

Illnesses that are caused by smoking remain as the world's leading cause of preventable death (2). Smoking and tobacco use make up approximately 30% of all cancer deaths and nearly 90% of lung cancer death (2). Yet, 18% of US citizens still smoke cigarettes (5). This is unfortunate given the tremendous health benefits conferred from smoking cessation (6). Thus, optimization of smoking cessation interventions is necessary to help to curb tobacco consumption, ultimately reducing the burden of diseases, including cancer.

We reviewed the extant research on framed messages for smoking cessation. Consistent with the tenets of Prospect Theory (19) and a recent meta-analysis (20), gain-framed messages appear to be preferable when working with adult patients who smoke tobacco products. Although the general idea of providing gain-framed messages to patients appears to be best, the evidence also suggests that moderators of treatment should guide framed statements made to individual patients. Meta-analysis has provided several consistent moderators of treatment (e.g., stage of change) (23), but it will be important for future studies to investigate and delineate the specific framed interventions that would be most helpful for sub-groups of smokers. In conclusion, instead of using loss-framed statements like "Smoking will harm your health by causing problems like lung and other cancers, heart disease, and stroke," as a general rule, physicians should use gain-framed statements like "Quitting smoking will benefit your health by preventing problems like lung and other cancers, heart disease, and stroke." Additionally, if the physician knows relevant demographic and smoking-specific variables about the patient (e.g., the patient, Matt, is a pack per day smoker of Marlboro Reds with a history of lung cancer and high self-efficacy to change), the gain-framed message should be tailored: "Matt, quitting your pack per day habit of Marlboro Reds will

improve your health. Most importantly, quitting smoking will reduce your risk of recurrence and increase your longevity. In addition, I'm pleased to see that you are confident that you can quit smoking – this confidence will benefit your smoking cessation efforts and also assist with relapse prevention." In summary, efforts to provide gain-framed smoking cessation messages in the context of the 5 "A's" model, as illustrated in this example and based on research, have the potential to make physicians' advice more effective and to increase smoking cessation success of their patients.

Acknowledgments

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Table 1

Examples of framed smoking cessation messages

Gain-framed message	Loss-framed message
Lung cancer patient:	*Lung cancer patient:*
Quitting smoking will boost the effectiveness of your cancer treatment (chemotherapy, radiation, surgery), will reduce your risk of another primary tumor, and will increase how long you live.	Continuing to smoke will lessen the effectiveness of your cancer treatment (chemotherapy, radiation, surgery), will increase your risk of another primary tumor, and will decrease how long you live.
*Tailored framed message (**tailored components in bold**):*	*Tailored framed message (**tailored components in bold**):*
Jane, as your physician of **10 years** who cares about you and your health, I want to convey to you that if you quit smoking **Marlboro Gold** cigarettes it will reduce your risk of developing **lung cancer - a disease that I know you are concerned about because of your family history. Given your high level of nicotine dependence,** I can tell you that quitting smoking can also have many immediate positive effects on your health. In addition to the positive benefits that quitting smoking can have on your own health, being smoke-free can also protect **your husband Jim and children, Matt and Ava** from diseases related to secondhand smoke.	**Jane,** as your physician of **10 years** who cares about you and your health, I want to convey to you that if you continue smoking **Marlboro Gold** cigarettes it will increase your risk of developing **lung cancer - a disease that I know you are concerned about because of your family history. Given your high level of nicotine dependence,** I can tell you that continuing to smoke can also have many immediate negative effects on your health. In addition to the negative consequences that continuing to smoke can have on your own health, being smoke-free can also endanger **your husband Jim and children, Matt and Ava** from diseases related to second-hand smoke.

Table 2

Examples of general gain-framed messages for physicians to deliver to cancer patients[*]

Gain-Framed Message Topic	Example
If you quit smoking, your cancer care will be better in many ways.	• You will reduce your risk for a second primary tumor. • You will live longer. • Your therapeutic radiation will work better. • You will have fewer complications from surgery. • You will have less toxicity with chemotherapy. • You will reduce your risk for a recurrence.
By quitting smoking, your general health will improve.	• Your heart and lungs will be healthier. • You will reduce your chances of heart problems and heart disease. • You will be less likely to develop lung cancer and several other types of cancers. • You will be able to breathe easier. • You will be more likely to resist colds and flu. • You will reduce your exposure to harmful chemicals in cigarette smoke • You will reduce your risk of stroke. • You will reduce your risk of sexual dysfunction.

It is never too late to quit smoking, and you will experience immediate and long-term benefits.	• As soon as you quit smoking, you begin to add years to your life.
	• You reduce your risk of mortality at all ages, including over age 80.
	• Within 8 hours:
	  - Oxygen level in blood increases to normal
	• Within 24 hours:
	  - Chance of heart attack decreases
	• Within 48 hours:
	  - Ability to smell and taste is enhanced
	• Within 2 weeks to 3 months
	  - Lung function increases up to 30 percent
	• Within 1 to 9 months
	  - Cilia re-grow in lungs, increasing ability to handle mucus, clean the lungs, reduce infection
	• Within 1 year
	  - Excess risk of coronary heart disease is half that of a smoker
	• Within 5 years
	  - Lung cancer death rate for the average former smoker (one pack a day) decreases by almost half
	  - Stroke risk is reduced to that of a nonsmoker 5-15 years after quitting
	  - Risk of cancer of the mouth, throat, and esophagus is half that of a smoker's
	• Within 10 years
	  - Precancerous cells are replaced with healthy cells
	  - Risk of cancer of the mouth, throat, esophagus, bladder, kidney, and pancreas decreases

You can work through the cravings.	• When you quit smoking, you may feel urges at first, but they will go away over time. • Although you may feel urges when you first quit smoking, they will lessen over time and eventually go away entirely. • With every passing day after you quit smoking, the craving to smoke gets weaker. • The longer you remain smoke-free; the fewer cravings you will get and the weaker these cravings will be. • After quitting smoking, you will notice your urges to smoke getting weaker and easier to overcome. • The longer you go without smoking, the fewer urges you will have until they eventually are gone.
You will experience several important benefits from smoking (e.g., appearance, saving money, etc).	• You will have whiter teeth and healthier gums. • Your clothes/house/car will no longer smell like smoke. • Food will taste better because your sense of smell and taste will improve. • If you quit smoking, you will save money that would otherwise be spent on cigarettes (over $1500 per year for a pack-a-day smoker).

[*] Whenever possible, tailor these messages to the specific variables about the patient (e.g., cancer history, demographics, smoking history, etc.).