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Smoking cessation counseling in vascular surgical practice using the results of interviews and focus groups in the Vascular Surgeon offer and report smoking cessation pilot trial

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Abstract

Objective—Although smoking cessation is a key priority emphasized by professional societies and multidisciplinary consensus guidelines, significant variation exists in the methods and efficacy of smoking cessation treatment practiced by vascular surgeons. We conducted a series of patient, surgeon, and nonpatient stakeholder focus groups to identify important domains for establishment of a successful smoking cessation program.

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AUTHOR CONTRIBUTIONS

Conception and design: MB, BB, AS, TT, SF, AF, PG Analysis and interpretation: KN, MB, BB, AS, TT, SF, AF, PG Data collection: KN, MB Writing the article: KN Critical revision of the article: MB, BB, AS, TT, SF, AF, PG Final approval of the article: KN, MB, BB, AS, TT, SF, AF, PG Statistical analysis: KN, MB Obtained funding: AF, PG Overall responsibility: KN

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Methods—As part of a planning effort for a randomized clinical trial on usual care vs a standardized, evidence-based smoking cessation intervention, our group performed a series of interviews and focus groups. These were four 1-hour interviews, conducted with stakeholders such as tobacco cessation counselors (n = 2), a Quit Line representative (n = 1), and a Vascular Quality Initiative leader (n = 1), as well as two 90-minute, formal, professionally moderated focus groups, one with vascular surgeons (n = 7), and another with patients (n = 4). Transcripts and audio recordings were qualitatively reviewed for themes to establish the most important domains perceived to be associated with a successful smoking cessation program.

Results—Patients emphasized four domains critical for a successful smoking cessation program: the motivation to quit, an individualized approach, the timing of an intervention, and the tone of the physician who offers counseling. Although surgeons and nonpatient stakeholders also emphasized the importance of a compassionate physician tone, surgeons and nonpatient stakeholders differed from patients in their remaining domains. They emphasized the feasibility of a brief intervention in a busy clinical practice, implementation of the effort, and necessary infrastructure for smoking cessation programs. All focus group participants described a brief, evidence-based smoking cessation intervention as feasible in routine vascular practice.

Conclusions—Differences in motivation and significance exist for patients, surgeons, and stakeholders when they considered the specific domains most important in building a successful smoking cessation program. Despite these differences, all parties involved agreed that a brief, standardized intervention can be successful delivered in a busy vascular clinic setting.

Smoking cessation has been shown to reduce complications,^{1–3} extend graft patency,⁴ and limit amputation risk^{5,6} for patients who undergo vascular procedures. Along with physician counseling, Quit Line referral and nicotine replacement therapy (NRT) have been shown to improve cessation and be cost-effective.^{7–11} Even very brief advice can augment quit rates.^{12,13} Most guidelines recommend discussion of smoking cessation and evidence-based smoking cessation treatment at each visit.¹⁴ However, vascular surgeons vary in the regularity with which they provide smoking cessation counseling, as well as in their use of cessation treatment.^{15–17}

Available studies offer few explanations for these practice variations. Surveys show surgeons and surgical trainees are less likely to counsel patients on smoking cessation than primary care or medical providers.¹⁸ General surgeons cite perceived time constraints, a lack of familiarity with adjunct resources, and overall discomfort with counseling as barriers to providing appropriate smoking cessation treatment.^{19,20} Qualitative studies of Quit Line referrals identified time as a significant barrier to smoking cessation counseling.²¹ However, these surveys and interviews were collected from a small number of surgeons, and these findings might therefore not be generalizable across different surgeons in varying practice environments.

Within this context, we sought to better understand why variations in smoking cessation treatment delivery might exist for vascular surgeons. To accomplish this task, we used focus groups with multiple stakeholders, including vascular surgeon physicians, smoking cessation counselors, national experts in smoking cessation, and multimodality support such as phonebased counseling and medications, as well as patients with vascular disease. We hoped to

gain better insight into improvement of cessation treatment delivery and quit rates within the typical vascular clinic practice.

METHODS

Background and context

Focus groups were conducted as part of the Vascular Surgeon Offer and Report (VAPOR) smoking cessation trial, a pilot cluster-randomized trial of smoking cessation strategies implemented across eight clinical sites across the United States. A complete list of VAPOR investigators in listed in Appendix 1 (online only). Surgeons in the control group provided their "usual care" in preoperative smoking cessation efforts. Surgeons in the intervention group used a standardized, multimodality smoking cessation intervention that included standardized discussion of smoking cessation, referral to telephone Quit Lines, and provision of NRT.

Interviews and focus groups

A total of two focus groups and four interviews were conducted during the study. Individual interviews were conducted with a Vascular Quality Initiative representative, two tobacco cessation counselors, and a Quit Line representative. Two focus groups were conducted: one focus group with vascular surgeons, and one patient focus group. Interviews and focus groups were led by a professional focus group moderator from Kollman Research Services, an accredited qualitative research consultancy. All participant identifiers were blinded from VAPOR investigators to preserve confidentiality. To ensure all interviews were conducted in a uniform fashion, the interview adhered to a semistructured format with a specific outline of topics. A moderator's guide was prepared before each focus group in collaboration with the study team and is available in Appendix 2 (online only). Sessions varied in structure, location, and number of participants (Table I).

Individual interviews with nonpatient stakeholders

Four individual stakeholder interviews were conducted in February 2015 via telephone, Web conference, or in person. Stakeholders included a representative from the Vascular Quality Initiative, two tobacco cessation counselors, and one tobacco Quit Line representative. Tobacco cessation counselors provided in-house cessation counseling, and the Quit Line representative provided counseling remotely or by referral to local resources. These stakeholders were recruited from participating sites via email announcement. Interviews lasted 1 hour and participants were not compensated for their participation.

Physician focus group

A 1-hour focus group was conducted February 15, 2015 via Web conference with seven vascular surgeons who had been participants in the VAPOR trial. All surgeons invited to the group were able to attend. The surgeons were all men who were board-certified in vascular surgery. They ranged in age from 38 to 62 years (mean age = 45 years), and had been in practice for an average of 8 years. They practiced in a variety of clinical settings, including private practices (1 of 7), academic hospitals (6 of 7), and the Veterans Administration hospitals (2 of 7, who also practiced in academic hospitals). All participated in the focus

group and no compensation was provided. The physician group moderators' guide was developed after qualitative interviews with surgeons who led and enrolled patients into the VAPOR trial and is available on request.

Patient focus group

A 90-minute focus group was conducted in April of 2015 with four current or former smokers at the coordinating sited—Dartmouth Hitchcock Medical Center. Participants were current or former smokers who had undergone a vascular procedure. Participation within the VAPOR trial was not required. Recruitment was performed by personal telephone invitation to trial participants. During the initial phone conversation, details, risks, and benefits of the scheduled focus group session were reviewed. Participants ranged in age from 52 to 64 years, and each had been smoking for more than 30 years. Only one had successfully quit at the time of the intervention, although all patients reported previous attempts at smoking cessation, which lasted up to 1 year before relapse.

All participants were guided in their discussion using open-ended questions to allow participants to freely express their opinions. Institutional review board approval for interviews and focus groups was obtained at the outset of the initial study. Patients were given \$50 for their participation in the 1-hour focus group. Informed consent was obtained for each participant.

Data analysis

The focus group proceedings and stakeholder interviews were audio-recorded and transcribed. There was no a priori hypothesis regarding patient domains; instead the data from focus groups were carefully reviewed for emerging themes and domains using qualitative data analysis methods.²² The focus group moderators and study authors each reviewed the transcripts. These transcripts were reviewed for individual themes related to smoking cessation. Within each group, the focus group moderator and study author grouped responses according to theme. Specific attention was paid to the commonality of themes voiced by the stakeholders and patient participants and the frequency and length of time devoted to each theme in discussion.

RESULTS

Overall domains identified during focus groups

Four primary domains of techniques most effective for successful smoking cessation were identified from the patient focus groups and four primary domains were identified from interviews and focus groups with surgeons and nonpatient stakeholders. The common domain in both of these groups identified supportive and compassionate tone in providing cessation advice. However, the remainder of the domains differed between the groups. Patient domains emphasized broad themes of individualization, motivation, and timing (Table II). In contrast, nonpatient stakeholders focused on the mechanics of smoking cessation programs: feasibility, infrastructure, and implementation (Tables III and IV).

Patient and clinician domain: surgeon's role

All stakeholders identified the tone of the patient-physician conversation as a key aspect of successful smoking cessation. Patients noted the importance of a positive, sympathetic tone in, as one noted "[Surgeons with negative advice] come off that way like if you don't stop smoking, what we do is going to be totally useless." Patients focused on the tone of the advice, rather than the length or strength of the counseling. One patient recalled a successful physician intervention: I'd have a question like with the Chantix and stuff, he [the surgeon] would always answer my questions, 'you just let me know if you want to. I'm not bossing you but if it's something you might want to try and let me know' and that put it so this man's not pressuring me but he's giving me an option to try, so I tried the Chantix.

Surgeons similarly noted importance of their tone in these conversations, and identified the need to be "sympathetic witness" to the patient, rather than, "the old days when we said, 'you are going to either give up smoking or your leg'." Other stakeholders echoed the sentiment that although surgeons should address smoking cessation, the tone they use is paramount, one tobacco counselor noted the importance of "really good positive language around understanding their motivations."

Patient domain: motivation

The four patient participants—all long-time smokers—understood that smoking adversely affected their health. Each had attempted to quit multiple times. When summing up his inability to quit smoking despite the consequences, one noted, "Logic does not work." Patients identified motivation to quit as essential for a successful smoking cessation effort. The specific motivation differed among participants: one quit during pregnancy and another after amputation. Life events were motivating but did not always lead to successful quit attempts: one participant described how seeing her father die from smoking-related complications and her own diagnosis of cancer were not successful 'wake-up calls.'

Patient domain: individualization

Patients noted that each smoker and even each attempt at smoking cessation are different, noting that a single, prescriptive method might not be effective for everyone. Participants used the side effects of NRT and bupropion as example, "I think the more options you can give people, the more you're going to have people participate because everybody's different." When asked about timing of the intervention, another noted, "You have to ask 10 people and get nine different answers." One patient summarized the idea of individualization, even within the context of a clinical trial, and noted "For the four of us or 100 people, it's going to be a different way for each individual and the studies usually try to find one that helps everybody and I don't think you're going to because its not just your health but your lifestyle and your raising and how you think of things."

Patient domain: timing of the intervention

Although clinicians universally advocated preoperative smoking cessation, some patients noted that the initial diagnosis is not the ideal forum for this discussion. One patient noted, "Don't throw in a pitch to be in a smoking program in with your diagnosis. When you are getting your diagnosis you are not happy. You are scared or sad or whatever." Before

hospital discharge or follow-up visits were cited as the ideal time to mention smoking cessation, with one patient who noted "If you don't want to go through [surgery] again, that's what you're looking for ... that is when [the surgeon] has all the ammunition."

Nonpatient stakeholder domains: feasibility

Vascular surgeons described the standardized protocol with brief interventions as 'easy' and 'doable' within their clinical practice. Surgeons noted that laminated cards with standardized script and streamlining NRT and bupropion prescriptions (Supplementary Fig, online only) made them more comfortable and consistent in offering smoking cessation counseling. One surgeon noted, "This protocol is going to be adopted by other surgical departments in the hospital." These brief, regular interventions were supported by tobacco cessation counselors and Quit Line representatives. A tobacco counselor emphasized, "Address smoking cessation every time. Don't shy away from it."

Nonpatient stakeholder domains: infrastructure

Cost of medications was identified by all clinician stakeholders as a barrier for treatment for some patients. One counselor noted "If [insurance issue] wasn't there, we'd be able to help so many people," and the Quit Line representative noted that NRT was particularly effective in states that subsidized its cost. All clinicians noted the disjointed feedback between referrals to Quit Lines and surgical practices. Surgeons noted it was often unclear what happened to their Quit Line referrals, and Quit Line representative noted that their fax-based communication was missed by clinic staff. Quit Line representatives noted plans to integrate referrals into the electronic medical record.

Provider domains: implementation

Surgeons and counselors agreed that surgeons should have limited responsibility for facilitating smoking cessation treatment after the patient agrees to a cessation effort. Surgeons suggested that after the initial conversation, another provider should ensure patients receive necessary medications and counseling, noting "We will have to redefine the role of who provide[s] the support." Other stakeholders agreed, with a Vascular Quality Initiative participant who noted, "If it's taken out of the surgeons hands, it's the best thing," with a tobacco cessation counselor suggesting, "They should be able to say, 'You need to quit smoking, and here's a nurse who can help.""

All stakeholders supported electronic treatment referrals and prescriptions. In sites where infrastructure for electronic referrals lagged, stakeholders noted that the study coordinator was essential to ensure patients received counseling, medications, and educational materials.

DISCUSSION

Our interviews with vascular surgeons and stakeholders found that key aspects of a successful vascular patient smoking cessation program included brief, but compassionate surgeon interventions with referrals to counseling and streamlined medications for interested patients. From our interviews with patients—including current and former smokers—we found that a brief, targeted, and repeated intervention is preferable to a focused and intensive

one. Although patients and stakeholders perceived an empathetic approach as an important domain in a smoking cessation program, patients valued individualization and patient-specific timing of the approach, and stakeholders more highly valued structural aspects such as how the intervention would be implemented.

The concerns expressed by surgeons and stakeholders within our study echo earlier findings of surveys of barriers surgeons face regarding preoperative smoking cessation. In survey data of general surgeons, surgeons expressed doubt that brief interventions can meaningfully improve quit rates.^{23,24} Lack of time within a clinic visit and lack of training in counseling methods are likewise identified as barriers to smoking cessation in surveys.^{19,21,25,26} However, vascular surgeon involvement in preoperative smoking cessation has been shown to affect quit rates—with quit rates almost 45% higher among surgeons who regularly offered cessation counseling and NRT.²⁷ Surgeons within our study noted simple interventions—such as standardized scripts, a simple referral process, and preprinted prescriptions for commonly used medications—made them comfortable with this discussion. Surgeons, patients, and other stakeholders agreed that even brief interventions—when delivered in a respectful, compassionate tone—can motivate patients who undergo vascular procedures to quit.

Despite the nearly universal support for smoking cessation in patients who undergo vascular procedures, earlier work has shown notable variation in the delivery of counseling. Computerized reminders—although widely implemented in electronic medical records—show mixed results in improvement of cessation counseling.^{28,29} Qualitative analysis of other surgical specialties has repeatedly identified time and discomfort with counseling as barriers to offering smoking cessation.^{21,26} In our study we found that these barriers can be removed within a vascular practice with minimal interruption to clinic flow. Suggested scripts and a standardized referral and prescription process allowed surgeons to systematically integrate smoking cessation counseling into a clinic visit. Already-present resources were used—which minimized the need for infrastructure. Our study did not focus on the success or failure of the interventions themselves, because of the body of earlier research that showed the efficacy of counseling, brief interventions, and NRT. Instead, we focused on application of these measures in a real-life setting. Future steps will evaluate the success of these interventions among patients who face vascular interventions.

Patients who undergo vascular procedures represent a unique cohort of smokers, because their tobacco use has likely contributed to their disease and they are at high risk for perioperative complications. Studies of smoking cessation among patients with peripheral artery disease noted the receptiveness of this patient population to cessation efforts.³⁰ Furthermore, major surgery has been cited as a teachable moment for smoking cessation counseling, with higher success rates among patients who undergo these procedures.^{31,32} Our qualitative findings reveal that patients are interested in quitting, even though they recognize the challenge.

Limitations

Our study has several limitations. First, we relied on smoker's self-report regarding smoking cessation. We believe that the four smokers in our focus group were honest in this regard,

given the length and breadth of the focus group interview, and did not choose to use additional measures (such as urine cotinine tests or exhaled carbon monoxide levels) to verify their smoking status. Notably, although the stakeholder interviews and focus groups consisted of representatives from multiple sites, only one site conducted a patient focus group, with a small number of patients. Although these patients were lifelong smokers and had experienced multiple smoking-related complications-including amputation and cancer -they did not represent the breadth of patients seen in the typical vascular practice. Larger studies with larger groups of current and former smokers with vascular disease would help us realize whether our findings are generalizable for all vascular patients. Furthermore, the surgeons who participated within our focus group were participants in a clinical trial of preoperative smoking cessation. Their participation likely biased them in their belief regarding the efficacy and feasibility of smoking cessation. However, the benefits of preoperative smoking cessation have been studied extensively, and are supported by a very strong base of randomized clinical evidence.^{3,33} Finally, smaller practices lack resources to provide intensive counseling or track the effectiveness of those interventions. Nearly all of our interventions used existing infrastructure to optimize smoking cessation counseling, and we believe these interventions could be implemented in practices of any size. Health care reforms will require coverage for smoking cessation counseling and medications, which we hope will eliminate the barriers to these medications for low-income patients. However, we recognize that smaller practices would be unable to track their outcomes effectively-which might perhaps reduce physician compliance.

CONCLUSIONS

Despite the perceived challenges of smoking cessation intervention delivery in clinics that serve high-risk patients, in our study we found that surgeons, patients, and other stakeholders were open to and interested in providing and/or receiving cessation treatment in the context of vascular disease and vascular procedures. Domains identified in our focus groups can help guide vascular surgeons in creation of an evidence-based, easily implemented smoking cessation program, even in busy vascular surgery clinics.

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Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table I

Interview and focus group participants

| Stakeholder | No. of participants | Type of interview conducted | Interview method or location | Duration of interview |
|--|---------------------|-----------------------------|-------------------------------------|-----------------------|
| Vascular Quality Initiative representative | 1 | Individual | Telephone | 1 hour |
| Tobacco cessation counselor | 2 | Individual | Telephone | 1 hour (each) |
| Tobacco Quit Line representative | 1 | Individual | Telephone | 1 hour |
| Vascular surgeons | 7 | Moderated focus group | Web conference | 1 hour |
| Vascular surgery patients | 4 | Moderated focus group | Nonclinical site within hospital | 90 minutes |

Table II

Patient domains of successful smoking cessation

| Domain | Summary of domain | | Key quotes | |
|---------------------------------|--|--|---|--|
| Patient motivation | Long-term smokers Know smoking is harmful | | "Sure, I quit, but can I spend the rest of my life every day craving something? Yeah, because I'm not going to have a life if I don't quit" | |
| | • | now they should quit smoking | "It's got to be a wakeup call but logic doesn't work." | |
| | • | Often have tried to quit multiple times | "The cigarettes are more of a priority than anything. Until you change the priority, it's not going to change anything." | |
| | Successfully quitting | requires a tipping point: | | |
| | • | Often a major life event | | |
| | • | Forces the patient to prioritize quitting | | |
| Physician tone in counseling | Successful aspects of physician advice: | | "If you make me feel like I'm not trying hard enough | |
| | • | Brief advice (no lecture) | or you're rude about it, I'm going to walk out and say bye and have a cigarette and won't see them again." | |
| | • | Compassionate tone | "Encouragement as opposed to belittling you like you're dumb. You had all this stuff and smoking isn't | |
| | • | Encouragement of small steps | helping and you can't quit." | |
| | • | Emphasizes the positive aspects (quitting will help you play with grandchildren, etc) | me to try to quit but he understands how hard it is and if I just keep working on it that would be good. I won't quit trying to quit." | |
| | Physician advice can be counterproductive: | | "You're telling this guy he's going to have his leg cut off and he's got all these problems and 'If you don't | |
| | • | Scolding or accusatory toward patient | put the damn cigarette down, that's the problem.' That's not the way." | |
| | • | Imply quid-pro-quo (we're going to place a stent, so you should quit) | | |
| Individualized program | Make a variety of options available Different options work for different patients Make all options accessible regardless of patient education level | | "I think something will work for everybody. It's just that it's so individualized. They've got to find that one for them." "Hey, how do you feel about this and this?" instead of handing them a booklet saying, "Fill this out." | |
| Timing of the attempt | Physicians should be mindful of when smoking cessation is discussed: • Not after a new diagnosis | | "Not when I was first diagnosed. I'm already scared." "If the blood's running good and everything's going great and the surgery went fine, now if I quit smoking, it's going to prolong it happening again and for | |
| | • | Patients mentioned after a successful procedure or hospitalization might be best | me, that was the time to say, okay, he's done everything he could do." Me personally, right out of surgery is the worst time. I was better, just before surgery for me. | |

Table III

Nonpatient stakeholder domains of successful smoking cessation

| | Domain | | | | | | |
|---|--|--|---|---|---|--|--|
| Stakeholder | Feasibility or effectiveness | Infrastructure and resources | | Implementation | Surgeon tone | | |
| Surgeon | Systematic approach with brief intervention is easy to do • Surgeons are surprised at the numbers who refuse to participate | Support personnel • Prescriptions should | Dedicated nurse, assistant Medications should be free Some states provide free medications, others do not be preprinted | Systematic approach Brief intervention Referral to Quit Line • Problems with feedback from Quit Line | Limit surgeon responsibility | | |
| VQI program | Should be part of the script of the normal office visit | Support Personnel | Dedicated nurse or administrator Laminated card | Succinct question Referral to Quit Line Medication recommendation | Limit surgeon responsibility | | |
| | | Should be nurse-run specific protocol | clinic, with a | | | | |
| Smoking cessation nurse | Brief counseling plus medication | Medication | | Electronic referral | It is paramount that the surgeons are involved and advise in a clear tone | | |
| | works Quitting a month before surgery is ideal | • | Quit Lines can provide patches, gum | Sollow-up phone calls (2 weeks, 3 months, 6 months) | | | |
| | | • | Preprinted prescriptions with patient instructions | | | | |
| | | • | Dedicated nurse | | | | |
| Tobacco consultation service manager | Six weeks before surgery is ideal Six in-person counseling sessions | Free nicotine replace available | ment should be | Electronic referral Quit Line refers to the counseling program | Surgeon should be informed and positive | | |
| Tobacco help line | Highly motivated population Higher success with those who | Electronic system Eliminate patient barriers: | | Patient called in 72 hours, then 3 attempts in a week | Surgeon initiation is | | |
| | self-refer 40% 30-day quit rate | • | Cost of medication | Feedback loop to physician via fax | key | | |
| | | • | Childcare for counseling | | | | |
| | | • | Telephone problems | | | | |

VQI, Vascular Quality Initiative.

Table IV

Nonprovider stakeholder quotes to illustrate domains

| Domain | Quote |
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| Feasibility | "The feasibility of executing the protocol is definitely there. It does need some administrative support to operationalize it, but it can be done." —Surgeon We know that even brief counseling helps people quit. People are more successful if they have some brief counseling. Then if you add some medication to counseling that helps them even more. —Tobacco cessation counselor "The really comprehensive program that looks at why someone is smoking, what the motivation is, and looks at their past, what's been helpful for them to quit in the past, setting a quit date that seems realistic, and then doing a major inventory of triggers and how they are going to deal with those in the future because they won't be using cigarettes anymore." — counselor |
| Infrastructure | "It's very powerful when a physician face to face implores somebody to stop smoking and then empowers that person with cost-free nicotine replacement therapy plus an offer for counseling." —Tobacco cessation counselor "With electronic medical records, you should be able to just hit a button and have it go, "Bing," right? Faxing is a work-around for us and it's really not appropriate for today." —Tobacco cessation counselor "So Quit Works-NH is embedded in the system, if it's an electronic system, with one click, they should be able to refer that patient to the call center." —Quit Line representative |
| Implementation | "Addressing smoking cessation every time. Don't shy away from it. Yeah, this person has had some pretty major abdominal aortic aneurism repair and we really have got to talk about the possible complications of this but it's just got to become part of their script and I think that's why having that card in their pocket to feel and remind them is good but they've got to just commit to the script." —VQI representative |
| Surgeon tone | "Just telling them, "You need to quit," increases your chances of quitting avoid belittling the patient or making light of how hard it is to quit. And then refer them either to the Quit Line or to a tobacco treatment specialist." —Tobacco counselor "If they can get down to those basic things to help that person understand that 'You were smoking one or two or three and now you're addicted to this product and we really want you to feel well and this is what's happening." —Quit Line "Using the 'I am here to help you' approach and 'I am not here to harass you or belittle you,' is critical." —Surgeon "I think that to be a sympathetic witness to the patient that 'smoking is very pleasurable and it is very difficult to give up but it really is affecting your health in a very serious way and we need to help you get off this." —Surgeon |

VQI, Vascular Quality Initiative.