Web exclusive

Front-office staff can improve clinical tobacco intervention

Health coordinator pilot project

Frederic Bass MD DSc SM Hyg **Brigham Naish** **Isaac Buwembo** GDBA

Abstract

Objective To learn whether front-line personnel in primary care practices can increase delivery of clinical tobacco interventions and also help smokers address physical inactivity, at-risk alcohol use, and depression.

Design Uncontrolled before-and-after design.

Setting Vancouver, BC, area (4 practices); northern British Columbia (2 practices).

Participants Six practices, with 1 staff person per practice serving as a "health coordinator" who tracked and, after the baseline period, delivered preventive interventions to all patients who smoked. To assess delivery of preventive interventions, each practice was to sample 300 consecutive patient records, both at baseline and at follow-up 15 months later.

Interventions Front-office staff were recruited, trained, paid, and given ongoing support to provide preventive care. Clinicians supplemented this care with advice and guided the use of medication.

Main outcome measures Effectiveness of the intervention was based on comparison, at baseline and at follow-up, of the proportion of patients with any of the following 6 proven intervention components documented in their medical records: chart reminder, advice received, self-management plan, target quit date, referral, and follow-up date (as they applied to tobacco, physical inactivity, at-risk alcohol use, and depression). A Tobacco Intervention Flow Sheet cued preventive care, and its data were entered into a spreadsheet (which served as a smokers' registry). Qualitative appraisal data were noted.

Results For tobacco, substantial increases occurred after the intervention period in the proportion of patients with each of the intervention components noted in their charts: chart reminder (20% vs 94%); provision of advice (34% vs 79%); self-management plan (14% vs 57%); target quit date (5% vs 11%); referral (6% vs 11%); and follow-up date (7% vs 42%). Interventions for physical inactivity and depression showed some gains, but there were no gains for at-risk alcohol use. Front-line staff, patients, and clinicians were enthusiastic about the services offered.

Conclusion Selected front-office personnel can substantially increase the delivery of evidence-based clinical tobacco intervention and increase patient and staff satisfaction in doing so. How far these findings can be generalized and their population effects require further study.

EDITOR'S KEY POINTS

- Clinical tobacco intervention, although effective, is inadequately delivered. This pilot project aimed to investigate whether training existing clinic staff to provide such intervention would increase the proportion of patients offered assistance with smoking cessation.
- The authors found that the health coordinators trained for this project substantially increased the proportion of patients offered tobacco intervention, and that they also managed to increase, to a lesser extent, intervention for some of the factors that reduce the odds of quitting.
- The authors were unable to measure actual cessation of smoking, as that would have required more resources; a much larger sample size; nonintervention, control practices; and a longer study period. Thus, they used chart documentation of intervention components that have been shown to be effective for smoking cessation as a measure of the effectiveness of the health coordinator role.

This article has been peer reviewed.
Can Fam Physician 2013;59:e499-506

Exclusivement sur le web

Le personnel de première ligne peut améliorer les interventions cliniques contre le tabagisme

Un projet pilote avec des coordonnateurs de la santé

Frederic Bass MD DSc SM Hyg **Brigham Naish** **Isaac Buwembo** GDBA

Résumé

Objectif Déterminer si le personnel de première ligne d'un établissement de soins primaires peut effectuer des interventions cliniques visant le tabagisme, et à aider les fumeurs à s'attaquer aux problèmes liés à la sédentarité, à l'abus d'alcool et à la dépression.

Type d'étude Étude avant-après, sans groupe témoin.

Contexte Quatre établissements de la région de Vancouver, BC, et 2 du nord de la Colombie-Britannique.

Participants Six établissements de santé où un membre du personnel agissait comme « coordonnateur de la santé »; ce dernier identifiait tous les patients fumeurs et, après une période initiale, faisait auprès d'eux des interventions préventives. Afin d'évaluer la qualité de ces interventions, chaque établissement devait choisir un échantillon des dossiers de 300 patients consécutifs, tant au début de l'étude qu'au suivi, 15 mois plus tard.

Interventions Après leur recrutement, les membres du personnel de première ligne ont été formés, payés et appuyés de façon continue dans leur prestation de soins préventifs. Des cliniciens ont contribué par des conseils et des avis sur l'utilisation des médicaments.

Principaux paramètres à l'étude L'efficacité de l'intervention a été évaluée en comparant, au départ et au suivi, la proportion des patients qui avaient bénéficié, tel que documenté dans leur dossier médical, de l'une ou l'autre des 6 composantes d'intervention suivantes: rappel au dossier, conseil, plan autogéré, date d'atteinte de l'objectif, consultation et date de suivi lorsque l'intervention portait sur le tabagisme, l'inactivité physique, l'abus d'alcool ou la dépression). Les soins préventifs étaient suivis grâce à un graphique d'évolution des interventions contre le tabagisme (Tobacco Intervention Flow Sheet), dont les données étaient rapportées sur une feuille de calcul, laquelle servait de registre du fumeur. Les données sur l'évaluation de la qualité étaient aussi notées.

Résultats Dans le cas du tabagisme, on a observé, après la période d'intervention, des augmentations importantes dans la proportion de chacune des composantes d'intervention inscrites aux dossiers: rappel au dossier (20% vs 94%); conseils donnés (34% vs 79%); plan autogéré (14% vs 57%); date d'atteinte d'objectif (5% vs 11%); demande de consultation (6% vs 11%); et date de suivi (7% vs 42%). Les interventions visant la sédentarité et la dépression montraient certains gains, mais non ceux concernant les risques liés à l'alcool. Personnel de première ligne, patients et cliniciens se sont montrés enthousiastes à propos des services offerts.

Conclusion Certains membres choisis du personnel de première ligne peuvent augmenter de façon importante la prestation d'interventions cliniques basées sur des données probantes visant l'arrêt du tabac, et ce faisant, améliorer le taux de satisfaction du personnel et des patients. D'autres études seront nécessaires pour déterminer jusqu'à quel point ces résultats peuvent être généralisés et pour préciser leurs effets sur la population.

POINTS DE REPÈRE DU RÉDACTEUR

- Même si elles sont efficaces, les interventions cliniques visant le tabagisme ne sont pas effectuées de façon adéquate. Cette étude pilote voulait déterminer si le fait de former le personnel clinique existant pour qu'il effectue de telles interventions pourrait augmenter la proportion de patients auxquels on offre de l'assistance pour arrêter de fumer.

- Les auteurs ont observé que les coordonnateurs de la santé formés pour ce projet augmentaient considérablement la proportion de patients à qui des interventions sur le tabagisme sont offertes; ils réussissaient aussi, mais à un moindre degré, à augmenter les interventions visant certains facteurs qui diminuent les chances de cesser de fumer.

- Les auteurs n'ont pas pu quantifier l'arrêt du tabac, ce qui aurait nécessité davantage de ressources, un échantillon beaucoup plus large, un groupe témoin sans intervention, et une étude de plus longue durée. Afin d'évaluer l'efficacité du rôle des coordonnateurs de la santé, ils ont donc vérifié dans les dossiers, la présence des types d'intervention réputés efficaces pour l'arrêt du tabac.

Cet article a fait l'objet d'une révision par des pairs. *Can Fam Physician* 2013; 59:e499-506

Clinical tobacco intervention, although highly effective, is inadequately delivered. Only half the Canadian smokers who saw physicians in 2005 received advice to stop smoking.[1] The US guideline on tobacco use and dependence underscores this deficit: "Indeed, it is difficult to identify any other condition that presents such a mix of lethality, prevalence, and neglect, despite effective and readily available interventions."[2]

To address this, Katz and colleagues found that medical assistants (who in the United States are clinically trained to assist physicians) and nurses could improve the delivery of tobacco intervention components: asking about smoking (58% vs 87%); asking about willingness to quit (28% vs 73%); offering advice (41% vs 47%); providing literature about quitting (3% vs 38%); discussing pharmacotherapy (15% vs 39%); and setting a quit date (2% vs 27%).[3] This study by Katz et al documented a significant increase in smoking cessation from the baseline year to the intervention year. They used 2 outcome measures: 7-day cessation prevalence at 6 months ($P=.009$) and continuous cessation (no smoking reported at both 2 and 6 months [$P<.001$]). Intervention practices demonstrated a baseline 10% 7-day cessation prevalence rising significantly to 15% during the intervention period ($P=.009$). Control practices had a baseline 9% 7-day cessation prevalence with little change (to 10%) during the intervention period ($P=.62$). The baseline rate of 3% for continuous cessation rose to 11% with the intervention, whereas control practices showed no change (4% to 4%).

We found only 2 published studies in which front-line staff were assigned substantial preventive roles. One, a randomized controlled trial, successfully employed a preventive care checklist.[4] In the second, medical assistants offered brief counseling to obese patients, which resulted in significant weight loss ($P<.001$); the weight was regained when the medical assistants' support was withdrawn.[5] No Canadian study had ever explored whether existing primary care staff could improve multiple components of clinical tobacco intervention.

In 2006 to 2007, we did a substantial feasibility study examining whether medical office assistants (who in British Columbia typically have a clerical as opposed to a clinical role) should offer aid to smoking patients. Patients, health professionals, and the public approved of the idea.[6] The feasibility study also recommended addressing smokers' physical inactivity, at-risk alcohol use, and depression, which are factors that reduce the odds of quitting.

Thus, for tobacco, this study focused on whether front-line personnel could increase intervention components proven to improve smoking cessation: chart reminders, physician's advice, self-management plans (including use of smoking cessation medication), setting a target quit date, referral, and scheduling follow-up visits. It also addressed whether these personnel could assist smokers with physical inactivity, at-risk alcohol use, and depression.

Design, setting, and participants

This pilot had an uncontrolled, before-and-after design involving delivery of selected preventive services in primary care settings.

The assessed populations comprised unselected, consecutive patients, aged 19 years or older, visiting the practice during the baseline and follow-up medical record surveys. For each survey, a convenience sample of consecutive patient visits (300 per practice) was set. With a prevalence of smoking of approximately 15% in BC in 2008,[7] a sample was expected to include almost 50 smokers at baseline and at follow-up, a sufficient number to crudely estimate proportions within the sample.

Following the baseline survey, health coordinators (HCs) offered clinical tobacco intervention to all the identified smoking patients they could reach and tracked progress on a computer spreadsheet. We use the term *clinical tobacco intervention* to include all measures offered to patients for identification or assessment of and advice, assistance, and follow-up for tobacco use. This even includes identifying and using chart reminders for non-smokers and long-term ex-smokers. *Smoking patients* were those who had smoked more than 100 cigarettes in their lifetimes and were currently smoking or had had a cigarette in the past 2 weeks. Tobacco intervention and follow-up were offered to all current smokers and to ex-smokers who had stopped for less than 12 months. Screening and brief intervention or referral were also offered for physical inactivity, depression, and at-risk alcohol use.

Two rural and 4 metropolitan practices participated (from the Northern Health and Vancouver Coastal Health regions). One front-line staff member per practice—an HC—coordinated preventive care. With help from regional practice support programs, 6 practices were found that were willing to assign 1 front-office staff member to do the following:

- use a patient-centred approach to offering basic information, practical problem solving, general support, and referral when needed;
- complete flow sheets and computer spreadsheets;
- encourage clinicians to provide advice and smoking cessation medication, as neither component was within the HC role;
- attend a 2-day training session and participate in weekly consultative sessions; and
- complete reports.

The HCs required communication skills, computer literacy, and the capacity to work with minimal supervision. The HCs coded medical record data from patients consecutively attending the practice. Demands on clinicians' time were minimal.

Confidentiality was that already established between practice and patient. Front-line staff forwarded anonymous, coded spreadsheets to the project statistician who analyzed the data. Coded identity comprised 4 digits from the medical plan number and 4 digits for month and year of birth.

Outcome measures

The proven intervention components we selected matched the "5 *A*s," as shown below.[2] Assessment of the effects of the project was based on the before-and-after change in documentation of these intervention components. To measure cessation of smoking would have required more resources; a much larger sample size; nonintervention, control practices; and a longer time period. Thus, the documentation of the following components was measured.

- Ask—chart reminder: *Chart reminder* was defined as an alert to clinicians regarding the patient's risk status by means of a sticker on a paper-based record, an electronic medical record alert, or listing the risk on a clinical problem list. The reminders were of 2 types: tobacco only or those covering all 4 risks.
- Assess—target quit date: Readiness to change was assessed by notation of a target quit date in the chart.
- Advise—advice: Strong, clear, and personalized advice is a responsibility of clinicians. We encouraged HCs to offer communication supportive of quitting smoking; they believed that strong advice was not within their role.
- Assist—self-management plan and referral: Use of stop-smoking medication was considered part of the smoker's self-management plan.
- Arrange follow-up—follow-up date.

Training, intervention, and tracking

Table 1 summarizes the project plan. During the initial 9 months we trained the HCs and they also completed the baseline survey. In the next period we sought to provide further skills and experience in regard to physical inactivity, depression, and at-risk alcohol use. After a year, they completed the follow-up survey. In the final months we analyzed data and helped the practices to decide how they would approach the preventive measures we had offered after the project was complete.

Initially, the Medical Director (F.B.) and project coordinator offered HCs face-to-face training (6 to 12 hours) that briefly involved the practice's clinicians. The Medical Director had extensive experience training health professionals in clinical tobacco intervention. The HCs were paid for 8 hours per week during the program. Ongoing consultation was offered through weekly telephone conferences and Web conferencing. Training topics included the following:

- approaching smokers—active listening, health risks, and ways to quit;
- tobacco addiction—from brain chemistry to social factors, tobacco withdrawal, and nicotine's useful effects on mood, attention, and reward;
- comorbidities of tobacco addiction—schizophrenia, depression, etc;
- how people quit—smokers' reasons and preferences for quitting;
- intervention—the "5 *A*s," smoking cessation medications, self-management, and social support;
- use of tools—flow sheets, spreadsheets, smoker's guide; and
- physical inactivity, at-risk alcohol use, and depression—how they interact with tobacco, and screening and brief help for each.

After the baseline survey, HCs began tobacco intervention. After 6 months and further training, they

Table 1. Project plan for the Health Coordinator Pilot (2008-2010)

PHASES	CENTRAL PROJECT ACTIVITIES	PRACTICE-LEVEL ACTIVITIES
First 9 months	• Recruit HCs • Develop clinical methods and instruments; develop training and data management tools • Provide HCs with ongoing support	• Provide HCs with orientation for the project; training for data management and CTI • Complete baseline survey • Participate in telephone conferences and Web forum
Months 10–21	• Analyze baseline survey • Support HCs with implementing CTI • Adapt CTI materials and methods for other 3 risks* • Address clinical, administrative, and data management issues • Support HCs to do follow-up survey	• Identify smoking patients; offer CTI; track CTI on spreadsheet • Consult clinicians regarding individual patients • Participate in teleconferences and Web forum • Train for addressing other 3 risks* • Complete follow-up survey
Months 22–24	• Analyze follow-up survey • Support HCs to do CTI and help with other 3 risks* • Prepare and submit final report	• Continue supporting smoking patients with CTI and other 3 risks* • Aid practices and patients to transition to post-project routines

CTI—clinical tobacco intervention, HC—health coordinator.
*Other 3 risks were physical inactivity, at-risk alcohol use, and depression.

added screening and brief intervention or referral for the other 3 risks.

Several tools facilitated record review, assessment of risks, and preventive interventions: chart reminders, the Tobacco Intervention Flow Sheet (a checklist and clinical record), and Clinical Tobacco Intervention Options (linked intervention to stage of stopping); the Smoker's Guide offered patients strategies for controlling and stopping smoking. These are available in PDF format from ImpactBC (**info@impactbc.ca**).

The HCs were to track smoking patients' progress on the spreadsheets in which smoking status and intervention components were recorded. For baseline and follow-up surveys, HCs sent the anonymous, coded spreadsheets to the project's statistical consultant who entered the data into an SPSS file, identified and corrected inconsistencies, tabulated the results, and completed statistical analysis.

RESULTS

Health coordinators' adaptation to their new role. Each of our practices developed its own approach. One had a clinic manager serving as HC. Another had a nurse in that role; the rest were medical office assistants. When one practice moved its offices, the HC worked from home. The HCs became front-line champions of prevention.

Initially, HCs hesitated to motivate patients who were not ready to quit, but they soon became comfortable doing so. They adjusted work hours and locations as needed. Telephone calls were often the best way to follow-up with patients. Later, when asking patients about depression and alcohol, HCs also initially believed they were being intrusive. They were pleased when screening, rather than intervention, for depression and alcohol was emphasized. In time, HCs became most comfortable addressing physical inactivity (less so for depression and least for alcohol). They identified 9% of patients to be at-risk alcohol drinkers compared with the Alcohol Risk Assessment and Intervention program's estimate of up to 25%.[8] Although brief intervention for at-risk drinking in primary care seems to be effective,[9] HCs were reluctant to offer it. Those with depression can be considered a clinical tobacco intervention priority, as they are twice as likely to smoke as those without depression.[10] As this pilot began, the provincial Practice Support Program targeted the clinical management of depression, and this helped the HCs to screen and refer smoking patients for depression.

Several HCs did not use the spreadsheets developed for tracking smoking patients as an active registry; instead they developed their own means of cueing follow-up. Baseline and follow-up surveys were completed in 5 of 6 practices.

In addition, HCs reported repeatedly that patients and clinicians were enthusiastic about the HCs' new role. This was confirmed by a short, qualitative survey of physicians.

Table 2. Participant characteristics at each clinic site at baseline and follow-up

CLINIC SITE	N	SMOKING PREVALENCE N (%)	FEMALE SEX, %	PATIENTS AGED > 65 Y,* %	CDM PATIENTS, %	SMOKING STATUS UNKNOWN,† %	READINESS TO QUIT ASSESSED,‡ %
Baseline							
• A	325	75 (23)	63	34	28	22	48
• C	496	65 (13)	46	20	36	0	45
• D	247	9 (4)	74	18	17	58	0
• E	296	61 (21)	53	27	29	10	28
• F	201	122 (61)	32	6	2	25	0
• Total	1565	332 (21)	54	23	27	27	25
Follow-up							
• A	301	46 (15)	59	45	23	9	85
• C	301	56 (19)	51	28	26	6	34
• D	220	5 (2)	48	34	42	78	100
• E	300	62 (21)	59	32	25	6	19
• F	187	119 (64)	25	7	9	20	38
• Total	1309	288 (22)	50	31	25	21	42

CDM—chronic disease management.
*A minor change in the age groupings occurred at follow-up when a pull-down system was used to aid data entry, so follow-up data are for patients aged older than 60 y.
†Refers to all patients.
‡Refers to smoking patients.

Patient characteristics. Practices varied in character, as shown in **Table 2,** specifically in the total number of records reviewed and in patients' sex, age, and chronic disease status. The 5 practices that completed both baseline and follow-up surveys generated 1565 baseline records. The sixth practice's results were omitted, as they did not complete the follow-up survey (**Table 3**).

Table 3. Patients reached in baseline and follow-up medical record surveys

VARIABLE	BASELINE	FOLLOW-UP
No. of practices	6 practices reviewed records; data from 5 are included*	5 practices reviewed records
No. of records reviewed	1565	1309†
No. of smokers	332	288
Smoking prevalence, %	21	22
Male sex, %	46	50
Adult patients, %	72 (20-64 y)‡	66 (19-60 y)‡

CDM—chronic disease management, HC—health coordinator.
*Data from clinic site B have been omitted because its HC, originally assigned from the health region, was reassigned elsewhere and this practice had no other staff available to continue the pilot. Its baseline survey results were close to the mean for number of records and patient age, sex, and CDM status. However, site B had the largest proportion of patients with unknown smoking status (mean 70% vs 27% for other 5 practices).
†The smaller number of records reviewed at follow-up reflects the increased demands on HCs' time from patient workload, which did not exist at baseline.
‡A minor change in the age groupings occurred at follow-up when a pull-down system was used to aid data entry.

Smoking. The prevalence of identified smokers was 21% at baseline and 22% at follow-up (**Table 4**). About 20% of smokers consumed fewer than 10 cigarettes daily. Assessment of smokers' readiness to quit increased from 25% to 42% at follow-up (**Table 3**).

Tobacco intervention components at baseline and follow-up. Intervention components increased substantially, especially chart reminders and advice to quit (**Table 5**). Self-management plans, target quit dates, referral, and follow-up dates—which apply to those ready to quit and to some contemplating quitting—increased to a lesser extent. Although HCs promoted the telephone- and computer-based QuitNow program, the response to referral was modest.

Physical inactivity. *Canada's Physical Activity Guide*[11] defined physical inactivity as fewer than 4 days per week of moderate activity. At baseline, 2% of participants were found to be at risk, 16% were not at risk, 5% were incapacitated, and 77% were at unknown risk. At follow-up, 11% were at risk, 70% were not at risk, 1% were incapacitated, and 17% were at unknown risk. Intervention for physical inactivity rose to modest levels (**Table 5**). Five of 6 intervention components for physical activity increased.

At-risk alcohol use. At-risk alcohol use was defined as reporting 4 or more drinks in 1 day during past 3 months for female patients and 5 or more in 1 day during past 3 months for male patients, or agreement with the statement "alcohol use is a problem for you or your family." At baseline, 4% were at risk; at follow-up, 10%. No intervention component for at-risk alcohol use increased (**Table 5**).

Table 4. Proportion of smokers in each clinic with each of the intervention components noted in their charts at baseline and follow-up

CLINIC SITE	SMOKING PREVALENCE, N (%)	CHART REMINDER, %	ADVICE TO QUIT, %	SELF-MANAGEMENT PLAN, %	TARGET QUIT DATE, %	REFERRAL, %	FOLLOW-UP DATE, %
Baseline							
• A	75 (23)	84	48	31	16	23	27
• C	65 (13)	1	86	22	3	0	3
• D	9 (4)	0	11	0	0	0	0
• E	61 (21)	2	34	18	3	3	3
• F	122 (61)	0	0	1	0	0	0
• Total	332 (21)	20	34	14	5	6	7
Follow-up							
• A	46 (15)	98	85	28	24	24	30
• C	56 (19)	88	96	61	2	2	55
• D	5 (2)	80	100	60	20	20	20
• E	62 (21)	100	97	18	0	16	18
• F	119 (64)	93	58	86	13	6	54
• Total	288 (22)	94	79	57	11	11	42

Depression. Documentation of history of depression increased from 9% to 26%. Five of 6 intervention components for depression improved. Among the 3 associated risks, intervention for depression showed the greatest increase (**Table 5**).

Table 5. Documented intervention components offered to smokers

INTERVENTION COMPONENT	BASELINE (N = 332*), N (%)	FOLLOW-UP (N = 288†), N (%)	*P* VALUE‡
Tobacco			
• Chart reminder	65 (20)	272 (94)	<.001
• Advice to change	114 (34)	227 (79)	<.001
• Self-management plan	48 (14)	164 (57)	<.001
• Target quit date	16 (5)	29 (10)	.02
• Referral	19 (6)	30 (10)	.04
• Follow-up date	24 (7)	121 (42)	<.001
Physical inactivity			
• Chart reminder	1 (0)	23 (8)	<.001
• Advice to change	33 (10)	71 (25)	<.001
• Self-management plan	24 (7)	43 (15)	.002
• Target quit date	1 (0)	4 (1)	>.05
• Referral	0 (0)	4 (2)	.04
• Follow-up date	2 (1)	34 (12)	<.001
At-risk alcohol use			
• Chart reminder	19 (6)	8 (3)	>.05
• Advice to change	10 (3)	8 (3)	>.05
• Self-management plan	8 (2)	14 (5)	>.05
• Target quit date	3 (1)	2 (1)	>.05
• Referral	6 (2)	3 (1)	>.05
• Follow-up date	7 (2)	9 (3)	>.05
Depression			
• Chart reminder	10 (3)	61 (21)	<.001
• Advice to change	24 (7)	71 (25)	<.001
• Self-management plan	20 (6)	66 (23)	<.001
• Target quit date	5 (2)	23 (8)	<.001
• Referral	16 (5)	22 (8)	>.05
• Follow-up date	19 (6)	60 (21)	<.001

*Out of 1565 baseline records (21%)
†Out of 1309 follow-up records (22%)
‡*P* values were estimated using the Mann-Whitney test (nonparametric) for comparing 2 independent groups.

DISCUSSION

Existing front-line staff (HCs) from 6 practices substantially improved clinical tobacco intervention. They increased the documentation of tobacco intervention, achieving a magnitude of improvement resembling that of Katz et al.[3] The use of existing clinic staff to deliver preventive priorities within Canadian primary care merits much more attention.

To improve clinical prevention, Crabtree et al[12] offered these recommendations:

- recognize the competing demands of acute care, chronic illness care, and even other preventive measures;
- develop a systematic approach, one not dependent on individual decision making;
- encourage clinical champions of prevention;
- address economic costs of prevention; and
- adapt to local needs—do not expect one set of (preventive) measures to work across all practices.

Demands on physicians' time are daunting. Thompson, reviewing the Prescription for Health initiative (which addressed tobacco, physical inactivity, unhealthy diet, and risky alcohol use) asked, "Why is this such a hard slog?" His answer: "Clinicians are drowning."[13]

Limitations

The methodologic limitations of this study included that there was no external validation of the data obtained by HCs, no long-term tracking of changes in intervention, and no measurement of actual smoking cessation. The potency of our intervention was limited by our not working with the whole practice, not paying physicians and other staff, and not providing smokers free smoking cessation medication.

Conclusion

By providing front-line staff with training, clinical tools, expert consultation, and payment, we helped 6 practices substantially improve their treatment of tobacco addiction. The extent to which this result can be generalized across primary care merits further work. Without external support, primary care practices are unlikely to reduce the widespread deficit in clinical tobacco intervention and in other aspects of clinical prevention. Greater investment in knowledge translation is warranted.

Dr Bass is a consultant in preventive medicine for ImpactBC and Clinical Professor Emeritus in the School of Population Health at the University of British Columbia in Vancouver. He was Medical Director of the Health Coordinator Pilot. **Mr Naish** is a management consultant in Peterborough, Ont, and was the Executive Director of the Health Coordinator Pilot. **Mr Buwembo** is Project Business Analyst for ImpactBC and was Project Management Consultant for the Health Coordinator Pilot.

Acknowledgment
This pilot project was made possible through a financial contribution from Health Canada. We thank the many members of ImpactBC who offered their logistical support and help with issues related to primary care innovation and training front-line staff. Without the bold and energetic contributions from the

key front-line staff who served as health coordinators, this pilot project would not have achieved positive results. We thank the following health coordinators: **Teressa Colosimo, Joseph Eliezer, Shelley Funnell, Josefa Kontogiannis, Robyn Savage,** and **Sanam Sepehry.** We also thank the following: **Gail Harrison,** who coordinated this project in its second year; **Bethina Abrahams,** who coordinated the first year of the project, including recruitment of the practices and the initial training of the health coordinators; **Angela O'Brien,** who supported the development of training materials; **Alex Green,** co-op student, who helped develop Excel-based tools and Web-conference design; and **Jessica Cheung,** co-op student, who helped with Web-conference design and administrative support.

Contributors

Dr Bass served as medical consultant to the project, trained the health coordinators in terms of the clinical information they required, and wrote the initial drafts of the manuscript. **Mr Naish** was the principal administrator of the project, and reviewed and edited each draft of the manuscript; **Mr Buwembo** coordinated the project logistics, aided in Web-conference design and in training health coordinators, and reviewed and edited each draft of the manuscript.

Competing interests

Dr Bass has served on the Varenicline Advisory (Pfizer) and as an adviser to Johnson and Johnson on nicotine replacement therapy, as well as a consultant in the more distant past to other pharmaceutical companies that were marketing smoking cessation medications.

Correspondence

Dr Frederic Bass, Healthy Heart Society of BC, Tobacco, 450-1385 W 8th Ave, Vancouver, BC V6H 3V9; telephone 604 742-1772; e-mail **fredbass@shaw.ca**

References

1. Centers for Disease Control and Prevention. Smoking-cessation advice from health-care providers—Canada, 2005. *MMWR Morb Mortal Wkly Rep* 2007;56(28):708-12.
2. Fiore MC, Jaén CR, Baker TB, Bailey WC, Benowitz NL, Curry SJ, et al. *Treating tobacco use and dependence: 2008 update.* Rockville, MD: US Department of Health and Human Services; 2008.
3. Katz DA, Muehlenbruch DR, Brown RL, Fiore MC, Baker TB; AHRQ Smoking Cessation Guideline Study Group. Effectiveness of implementing the Agency for Healthcare Research and Quality smoking cessation clinical practice guideline: a randomized controlled trial. *J Natl Cancer Inst* 2004;96(8):594-603.
4. Dubey V, Mathew R, Iglar K, Moineddin R, Glazier R. Improving preventive service delivery at adult complete health check-ups: the Preventive Health Evidence-based Recommendation Form (PERFORM) cluster randomized controlled trial. *BMC Fam Pract* 2006;7:44.
5. Tsai AG, Wadden TA, Rogers MA, Day SC, Moore RH, Islam BJ. A primary care intervention for weight loss: results of a randomized controlled pilot study. *Obesity* (Silver Spring) 2010;18(8):1614-8.
6. Hartshorne A, Bass F, Dhillon J. *Preventive Hygienist Feasibility Study. Health Canada Tobacco Control Program Project 6549-10-2006/5280040: developing the role of preventive hygienist.* Vancouver, BC; Society for Clinical Preventive Health Care; 2007.
7. *Canadian Tobacco Use Monitoring Survey.* Ottawa, ON: Health Canada; 2009.
8. *Alcohol Risk Assessment and Intervention (ARAI): a resource manual for family physicians.* Mississauga, ON: College of Family Physicians of Canada; 1994.
9. Kaner EF, Beyer F, Dickinson HO, Pienaar E, Campbell F, Schlesinger C, et al. Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database Syst Rev* 2007;(2):CD004148.
10. Pratt LA, Brody DJ. *Depression and smoking in the US household population aged 20 and over, 2005-2008.* NCHS Data Brief No. 34. Rockville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2010.
11. *Canada's physical activity guide.* Ottawa, ON: Health Canada; 1998.
12. Crabtree BF, Miller WL, Tallia AF, Cohen DJ, DiCicco-Bloom B, McIlvain HE, et al. Delivery of clinical preventive services in family medicine offices. *Ann Fam Med* 2005;3(5):430-5.
13. Thompson RS. The Prescription for Health initiative; some steps on the road to success: what will it take to complete the journey. *Am J Prev Med* 2008;35(Suppl):S431-3.