

The Wisconsin Tobacco Quit Line's Fax to Quit Program: Participant Satisfaction and Effectiveness

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ABSTRACT

Objective: The purpose of this study was to assess the Wisconsin Tobacco Quit Line's (WTQL) clinic-based Fax to Quit (FTQ) provider referral program in terms of participant satisfaction and short-term quit outcomes, and to compare those findings to a non-FTQ provider referral group.

Methods: A sample of 432 WTQL callers completed a telephone survey approximately 3 months after they received WTQL services. Of these, 265 contacted the WTQL based on a clinic referral and served as the basis for analyses. Of these 265, 158 FTQ respondents were compared to 107 non-FTQ respondents in terms of satisfaction with the WTQL as well as quit attempts and tobacco abstinence.

Results: Overall, survey respondents reported high levels of satisfaction with the WTQL (FTQ=96.8%, non-FTQ=92.7%). Other measures of satisfaction (cultural sensitivity, respondent needs and concerns understood) showed similarly high levels of respondent satisfaction for both groups. FTQ respondents reported a statistically significantly higher 30-day abstinence rate (46.8%) compared to non-FTQ respondents (32.7%).

Conclusions: Participants expressed high levels of satisfaction with WTQL services and demonstrated high short-term quit rates. FTQ-referred WTQL users reported higher rates of tobacco cessation than non-FTQ-referred WTQL users. These findings suggest

that fax referral has potential to successfully link smokers visiting primary care clinics to the WTQL, an evidence-based cessation option.

INTRODUCTION

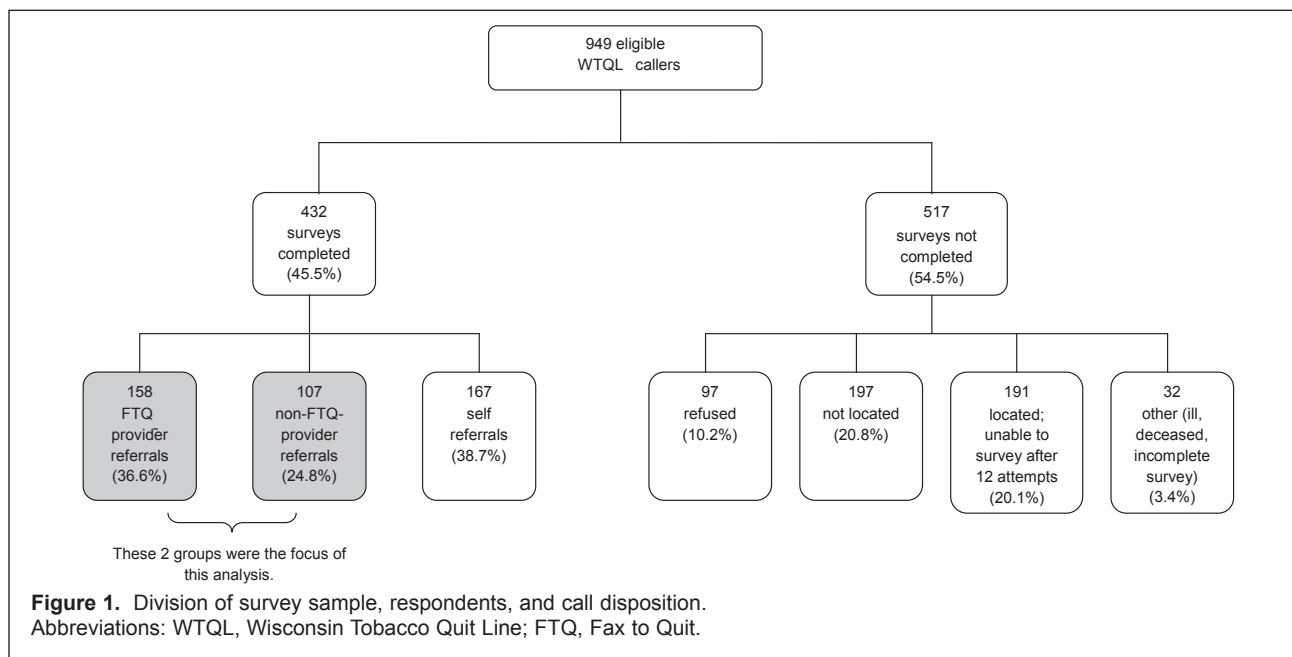
Numerous studies and meta-analyses have shown that telephone quitlines are an effective population-wide strategy to deliver evidence-based tobacco dependence treatments to smokers.¹⁻⁴ In addition, the US Public Health Service Clinical Practice Guideline *Treating Tobacco Use and Dependence: 2008 Update* identified quitline counseling as an effective treatment that increased the odds of tobacco abstinence by approximately 60% when compared to minimal counseling, no counseling, or self-help.⁵ This body of evidence has influenced all 50 states to provide tobacco cessation quitline services to their residents. Because quitlines require only the availability of a telephone, they have the potential to reach a large proportion of tobacco users, including those of low socioeconomic status and underserved individuals.

Yet the population reach of state-based telephone quitlines has been very low to date.^{1,6} A recent national assessment determined that approximately 1% of smokers in the United States call quitlines each year.⁷ In response, states have implemented various strategies to increase the reach of evidence-based quitlines including media and marketing efforts, promotions that include the provision of smoking cessation medications with quitline services, and efforts to link the quitline to health care delivery systems.⁸ There is a clear need to identify and evaluate strategies that can increase the reach and use of quitlines in a cost-effective way so that this evidence-based treatment can help a greater number of tobacco users quit.

One strategy aimed at providing a sustainable, high-volume referral stream to quitlines is provider-initiated fax referrals from health care settings. Using this strategy, when a provider identifies a tobacco user during a routine health care visit, a mechanism is in place at

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the clinic to inform these patients of the availability of free quitline tobacco cessation services. The clinic then faxes a request for those services to the state quitline if the patient agrees. Fax referral has rapidly become part of many cessation interventions across the United States—49 of 53 state and territory quitlines now offer fax referrals for healthcare professionals (J. Saul, PhD; North American Quitline Consortium; oral communication; June 2009).

Wisconsin’s fax referral program, Fax to Quit (FTQ), has been established at more than 500 clinic sites across the state and has generated over 17,000 fax referrals since 2003. However, this quitline referral strategy has not been formally evaluated. While there is gathering evidence that fax referral programs can serve as an effective tool for increasing quitline referral and enrollments rates,⁹⁻¹¹ research has not yet evaluated participant satisfaction with these programs or the extent to which fax referral influences quit outcomes compared with other quitline methods of entry. The purpose of this study was to assess participant satisfaction and quit rates with Wisconsin Tobacco Quit Line (WTQL) services as a function of 2 methods of entry: FTQ provider referral versus non-FTQ provider referral.

METHODS

Prior users of the WTQL were included in the survey sample if they were tobacco users, received an intervention from a WTQL Quit Coach®, were English speaking, 18 years of age or older, and had a valid phone number in the WTQL database. Of the 949 WTQL callers iden-

tified as eligible, 432 completed the telephone survey, resulting in an overall 45.5% completion rate. Among the 517 WTQL users who did not complete the survey, 97 (10.2%) refused, 197 (20.8%) were not locatable, 191 (20.1%) were located but did not complete the survey after 12 attempted calls, and 32 (3.4%) did not complete the survey due to death, illness, or failure to complete the entire survey (Figure 1).

Since its inception on May 1, 2001, the WTQL, 1-800-QUIT-NOW, has fielded more than 150,000 calls and provided free, telephone-based tobacco treatment services to nearly 100,000 tobacco users. Tobacco users who call the WTQL have an array of service options: one-on-one counseling calls with a Quit Coach; Web Coach™—a secure, interactive, Web-based program with discussion forums; a free 2-week starter kit of over-the-counter nicotine replacement therapy (NRT); printed self-help materials; and referrals to local quit-tobacco resources (where available). Most callers take advantage of multiple options to help them quit (unpublished WTQL data, 2009).

Residents can access the WTQL through 3 referral methods: non-FTQ provider referral, FTQ provider referral, or self referral. The WTQL, as part of standard baseline data collection for all new callers, asks callers how they accessed the WTQL and provides that information to the state as part of a monthly WTQL utilization report. Self-referred tobacco users call the WTQL number on their own, often as a result of advertising, other promotions, or free publicity about the WTQL (unpublished WTQL data, 2009). Provider-based refer-

als (both non-FTQ and FTQ) are generated by a range of health professionals including physicians, physician assistants, nurses, health educators, dental providers, and pharmacists in a variety of settings such as clinics, hospitals, health maintenance organizations, health departments, and dental clinics. For non-FTQ provider referrals, tobacco users are encouraged by a health care professional to call the WTQL when they are ready to quit. For FTQ provider referrals, tobacco users who are identified by a health care professional as interested in quitting in the next 30 days and willing to accept calls from the WTQL are asked to sign a consent form to be proactively contacted by the WTQL. The health care professional then faxes the signed consent form to the WTQL, and the tobacco user is contacted within 3 days by a WTQL Quit Coach.

At the time of the survey, WTQL promotional materials including brochures, bookmarks, and business cards free of charge were available to health care professionals through the WTQL website (www.WIQuitLine.org). The WTQL FTQ program has been described in greater detail elsewhere.¹²

An independent research survey company (The Gilmore Research Group) was contracted to conduct a telephone survey that was administered between March 1, 2007, and August 30, 2007, to a sample of 949 eligible callers who received WTQL services between December 1, 2006, and April 30, 2007. A mix of census and random sampling methods were used by the Free and Clear, Inc Evaluation Division to ensure an adequate number of individuals who (1) accessed the WTQL via the 3 referral methods and (2) represented disparate populations in Wisconsin. The survey was timed to take place approximately 3 months after the callers received WTQL services. At the time of the survey, neither Web Coach nor NRT was available for all WTQL tobacco users.

The current study focuses only on provider-based referrals in that individuals in the non-FTQ provider referral and FTQ provider referral groups did not differ on key sociodemographic and health care access variables, whereas self-referred callers were quite different from both provider-referred WTQL users on these variables. For example, only 25.2% of self-referred users were white compared to 80.4% of non-FTQ provider-referred WTQL users and 89.9% of FTQ provider-referred users. Self-referred users also were less likely than provider-based quitline users to have health insurance or a health care professional. Preliminary analyses showed that these differences between provider-based versus self-referred WTQL users were highly associated with study outcomes, thus making unambiguous

interpretation of results difficult. As a result, the current study compares only the non-FTQ provider referral and FTQ provider referral groups (Figure 1). Results for the self-referred group are available on request.

Definitions

Respondents who agreed to participate in the survey were asked about their satisfaction with WTQL services and whether they had successfully quit tobacco use. Overall satisfaction with the WTQL and with the Quit Coach was reported as positive if respondents reported that they were “somewhat” to “very” satisfied with these services. Respondents answered “yes” or “no” to whether or not the WTQL met their expectations. Regarding whether WTQL staff understood the caller’s needs and concerns, the response was coded as yes if the respondent answered “somewhat” to “strongly” agreeing with that question. Survey respondents were also asked if the WTQL coach respected their values, beliefs and culture as a measure of cultural sensitivity. If respondents answered “somewhat” to “strongly” agreeing with that statement, the answer was coded as yes to culturally sensitive. Respondents who answered “refused” or “don’t know” to any of the satisfaction questions were excluded from the computation of agreement rates for the questions. Helpfulness of the referring health care professional was also evaluated; ratings of “very helpful” and “somewhat helpful” were considered to be indicative of helpfulness (versus ratings of “not too helpful” and “not at all helpful”).

A serious quit attempt was defined as an attempt to quit tobacco that lasted at least 24 hours sometime during the 3 months after participants enrolled in the WTQL. Consistent with the Society for Research on Nicotine and Tobacco criteria for abstinence outcomes, tobacco abstinence was defined as participants self-reporting that they had been tobacco free for the last 7 days or more at the time of the 3-month follow-up survey.¹³ Additionally, a 30-day abstinence rate was defined as respondents being tobacco free for 30 days or more at the time of the 3-month follow-up survey.

Statistical Analysis

All analyses were conducted using SAS Version 9. All tests were 2-tailed tests, and findings were classified as significant if $P < .05$. Frequencies were generated for all participants’ sociodemographic variables and for questions asked during the 3-month follow-up survey. Significance tests for group comparisons were computed using χ^2 tests, analysis of variance, and logistic regression analysis. For each outcome measure, 2 logistic regression analyses were computed: a model unadjusted

Table 1. Sociodemographic Characteristics and Tobacco Use Variables by Referral Method

	Referral Groups (N=265)		Logistic or Multiple Regression Results for FTQ- vs Non-FTQ- Provider Referral Comparison, P-values
	Fax-to-Quit (FTQ)- Provider Referral (n=158)	Non-FTQ- Provider Referral (n=107)	
Female (%)	60.8	52.3	.17
White (%)	89.9	80.4	.03
Age, Mean (SD)	46.0 (13.9)	50.0 (12.8)	.11
Has health insurance (%)	89.7	79.1	.03
Cigarettes per day, mean (standard deviation) ^a	18.1 (10.5)	21.1 (15.1)	.11
Smoke first cigarette within 5 minutes of waking (%)	40.7	47.5	.29

^a Total subjects for this comparison was 183 rather than 265 due to missing data.

for covariates and a model including covariates (gender, race, whether or not the respondent has health insurance, and whether or not the respondent smoked his or her first cigarette of the day within 5 minutes of waking).

RESULTS

Table 1 displays sociodemographic and tobacco use variables by referral group. The FTQ provider-referred and non-FTQ provider-referred groups differed by percentage of white participants (89.9% and 80.4%, respectively) and percentage with health insurance (89.7% and 79.1%, respectively). These 2 variables are used as covariates in adjusted logistic regression analyses along with gender and whether or not the first cigarette of the day was smoked within 5 minutes of waking.

Results by Referral Method

Table 2 presents results of analyses comparing the FTQ provider-referred and non-FTQ provider-referred groups on satisfaction with the WTQL. Levels of overall satisfaction did not differ for the 2 groups and both rates of satisfaction were above 92%. FTQ provider-referred respondents reported somewhat higher and statistically significant levels of satisfaction with their WTQL Quit Coach compared to non-FTQ provider-referred respondents (98.6% versus 93.7%, respectively). No group differences were found for the remaining 3 satisfaction questions concerning the WTQL meeting expectations; the Quit Coach respecting values, beliefs, and culture of respondents; and the WTQL staff understanding caller needs and concerns. Satisfaction rates for these questions were also quite high. In terms of helpfulness of referring health care professionals, respondents in the FTQ provider-referred group reported a significantly higher rate of helpfulness (91.0%) compared to the non-FTQ provider-referred group (77.5%).

Quit Rates

Table 3 presents quit attempts and quit rates for the 2 groups. FTQ provider-referred group respondents reported a higher rate of quit attempts (91.6%) compared to non-FTQ provider-referred group respondents (83.2%); this comparison was statistically significant ($P=.04$) in the unadjusted analysis but only marginally significant ($P=.06$) in the covariate-adjusted analysis. Groups did not differ on the 7-day point prevalence abstinence rate although the FTQ provider-referred group was somewhat higher (52.5%) than the non-FTQ provider-referred group (42.1%). However, there was a group difference on the 30-day point prevalence abstinence rate with 46.8% of the FTQ provider-referred group reporting abstinence versus 32.7% in the non-FTQ provider-referred group. This difference was found in both the unadjusted and covariate-adjusted analyses.

DISCUSSION

For almost a decade, the WTQL has endeavored to achieve 2 core goals: first, to provide evidence-based tobacco dependence treatment to Wisconsin smokers who want to quit, and, second, to provide telephone tobacco cessation treatments via a client-centered approach tailored to the personal beliefs, values, and needs of each caller. This study suggests that the WTQL is succeeding in achieving both outcomes. A substantial proportion of smokers who contacted the quitline achieved short-term cessation success, and those respondents expressed high levels of satisfaction with the services they received, as well as reporting that they felt comfortable and respected by WTQL staff. Moreover, there were no differences in ratings of satisfaction or cultural sensitivity across the 2 provider-based referral

Table 2. Respondent Satisfaction with Wisconsin Tobacco Quit Line (WTQL) and Health Care Professional by Referral Method

	Referral Groups		Logistic Regression Results for FTQ- vs Non-FTQ-Provider Referral Comparison, P-values	
	Fax-to-Quit (FTQ)- Provider Referral	Non-FTQ- Provider Referral	Unadjusted for Covariates	Adjusted for Covariates ^a
Percent satisfied with the WTQL	96.8	92.2	.11	.07
Percent satisfied with their quit coach	98.6	93.7	.06	.04
Percent reporting that the WTQL met expectations	90.9	87.6	.26	.42
Percent reporting that the quit coach respected values, beliefs, and culture	99.3	96.9	.20	.40
Percent reporting that the WTQL staff understood caller needs and concerns	98.6	94.9	.11	.19
Percent reporting that referring health care professional was helpful in the decision to try quitting tobacco	91.0	77.5	.005	.01

^a Adjusted for the following covariates: gender, race (white versus non-white), whether or not first cigarette is smoked within 5 minutes of waking, and whether or not the caller has health insurance.

methods of accessing the WTQL. Finally, the WTQL is achieving its goal of providing population-wide tobacco cessation services. By January 1, 2010, nearly 100,000 Wisconsin smokers received services from the WTQL, representing one-eighth of smokers in our state.

In terms of quit outcomes, results indicate that callers to the WTQL achieved high short-term quit rates. Three months after receiving counseling services from the WTQL, 46.8% of FTQ provider-referred respondents and 32.7% of non-FTQ provider-referred respondents had not used even a puff of tobacco for 30 days or more. These quit rates compare favorably to those in randomized controlled trials evaluating the effectiveness of telephone support to help smokers quit.³

FTQ provider-referred respondents were different from non-FTQ provider-referred respondents on health care professional access and helpfulness, which may have contributed to their higher rates of tobacco abstinence. More specifically, FTQ provider-referred respondents were more likely to have health insurance and to report that their health care professional was helpful in assisting them in the quit process.

Evidence has documented that physician advice can be a powerful motivator to quit and minimal clinical interventions lasting as brief as 3 minutes increase tobacco abstinence rates.⁵ Through WTQL's FTQ program, health care professionals take an active role in promoting cessation by screening for tobacco use, advising tobacco users to quit, and—for individuals willing to make a quit attempt in the next 30 days—seamlessly arranging follow-up through the WTQL. The WTQL delivers the counseling component of tobacco depen-

dence treatment, while health care professionals are expected to encourage the use of the WTQL and recommend or prescribe FDA approved medications. These 2 components—evidence-based counseling and prescribing or recommending 1 or more of the 7 FDA-approved cessation medications—were key recommendations of the recently published 2008 US Public Health Service Clinic Practice Guideline *Treating Tobacco Use and Dependence*.⁵ Additionally, the health care visit is an opportune moment for a cessation intervention since the tobacco user is already addressing health issues and may be more motivated to make a quit attempt.¹² Overall, FTQ provider-referred survey participants appeared to benefit from their health care professional's linkage to the WTQL.

This study has several limitations. Due to funding constraints, this evaluation was carried out only at 3 months after participants completed the program. Quit rates will decline over time, and 6-months is a commonly recommended follow-up time period for measuring long-term quit outcomes. The study also relied on self-reported quit rates without biochemical verification, although others have found a strong correlation between self-report tobacco use status and cotinine levels, and this approach has been used in many quitline studies.^{5,14} Further, we did not select a random sample of all callers, relying on a mixed method of random and census sampling procedures in order to contact a sample that represented the diversity of Wisconsin smokers and included large enough numbers of smokers who accessed the quitline via the 3 possible referral mechanisms. And, with a response rate of about 45%, it

Table 2. Quit Attempts and Tobacco Abstinence Rates by Referral Method

	Referral Groups		Logistic Regression Results for FTQ- vs Non-FTQ-Provider Referral Comparison, P-values	
	Fax-to-Quit (FTQ)- Provider Referral	Non-FTQ- Provider Referral	Unadjusted for Covariates	Adjusted for Covariates ^a
Percent who made a serious quit attempt (>24 hours)	91.6	83.2	.04	.06
7-day point-prevalence abstinence rate	52.5	42.1	.10	.08
30-day point-prevalence abstinence rate	46.8	32.7	.02	.02

^aAdjusted for the following covariates: gender, race (white versus non-white), whether or not first cigarette is smoked within 5 minutes of waking, and whether or not the caller has health insurance.

is unknown whether or not individuals who responded to the survey differed in any meaningful ways from individuals who did not respond to the survey. Finally, while findings from this evaluation indicate differential quit rates among referral groups, we did not collect sufficient data to make assumptions regarding the reasons for these differences. Further study is required to fully clarify the differences in quit outcomes.

CONCLUSIONS

For almost a decade, Wisconsin has provided evidence-based tobacco cessation treatments via the WTQL, serving nearly 100,000 smokers in our state during that time. WTQL services are highly rated by callers in terms of both satisfaction and cultural sensitivity. The WTQL has been successful in assisting callers in successfully quitting tobacco use. In particular, callers accessing the WTQL via fax referrals demonstrated higher tobacco abstinence rates, although these callers differed somewhat from other callers (non-FTQ provider-referred). These findings suggest that FTQ is an effective way to link smokers visiting their primary care professional with evidence-based treatments.

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REFERENCES

- Centers for Disease Control. *Telephone quitlines: A resource for development, implementation, and evaluation*. Final edition. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004.
- Lichtenstein E, Glasgow RE, Lando HA, Ossip-Klein DJ, Boles SM. Telephone counseling for smoking cessation: rationales and meta-analytic review of evidence. *Health Educ Res.* 1996;11(2):243-257.
- Stead L, Perera R, Lancaster T. Telephone counselling for smoking cessation. *Cochrane Database Syst Rev.* 2006;3:CD002850.
- Zhu SH, Anderson CM, Tedeschi GJ, et al. Evidence of real-world effectiveness of a telephone quitline for smokers. *N Engl J Med.* 2002;347(14):1087-1093.
- Fiore MC, Jaen CR, Baker TB, et al. Treating tobacco use and dependence: 2008 Update Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service. May 2008.
- Ossip-Klein DJ, McIntosh S. Quitlines in North America: Evidence base and applications. *Am J Med Sci.* 2003;326(4):201-205.
- Cummins SE, Bailey L, Campbell S, Koon-Kirby C, Zhu SH. tobacco cessation quitlines in North America: a descriptive study. *Tob Control.* 2007;16 Suppl 1:i9-i15.
- North American Quitline Consortium. *Quitline operations: A practical guide to promising approaches*. Phoenix, AZ: North American Quitline Consortium; 2005.
- Willett JG, Hood NE, Burns EK, et al. Clinical faxed referrals to a tobacco quitline: reach, enrollment, and participant characteristics. *Am J Prev Med.* 2009;36(4):337-340.
- Bernstein SL, Jearld S, Prasad D, Bax P, Bauer U. Rapid implementation of a smokers' quitline fax referral service in an urban area. *J Health Care Poor Underserved.* 2009;20(1):55-63.
- An LC, Bluhm JH, Foldes SS, et al. A randomized trial of a pay-for-performance program targeting provider referral to a state tobacco quitline. *Arch Intern Med.* 2008;168:1993-1999.
- Perry RJ, Keller PA, Fraser D, Fiore MC. Fax to quit: a model for delivery of tobacco cessation services to Wisconsin residents. *WMJ.* 2005;104(4):37-40,44.
- Hughes JR, Kelly, JP, Niaura RS, et al. Measures of abstinence in clinical trials: issues & recommendations. *Nicotine Tob Res.* 2003;5(1):130-25.
- SRNT Subcommittee on Biochemical verification. Biochemical verification of tobacco use and cessation. *Nicotine Tob Res.* 2002;4:149-59.

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