Connecticut Tobacco Quitline Evaluation:

Final Evaluation Report

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Executive Summary

DPH has contracted with Professional Data Analysts, Inc. (PDA), to conduct an independent, comprehensive evaluation of the Connecticut DPH tobacco control efforts. This report is one of four main components of that evaluation. In this report, we present Quitline enrollment volume trends from FY10 to FY12, an analysis of the differences between fax-referred and self-referred Quitline registrants, and an analysis of Quitline use by tobacco users with mental health and/or chronic health issues. An analysis of the Quitline's cost per enrollment and cost per quit has been submitted under separate cover.

Enrollment in the Quitline has increased steadily over the past three fiscal years. In FY12, nearly 11,000 tobacco users registered for Quitline services, more than twice the number of registrations in FY10. The Quitline has successfully treated and helped more Connecticut residents stop using tobacco every year.

Fax referrals to the Quitline from healthcare providers and other professional increased in FY12, both as an absolute number and as a percentage of registrations. Fax referrals result in fewer Quitline registrations and a lower level of program utilization as compared to self-referrals. However, referrals are an important and low cost strategy to increase treatment reach and results in similar quit outcomes as do self-referrals. We recommend the DPH continue efforts to build and strengthen referral networks in order to connect more tobacco users with cessation services.

The tobacco cessation field has recently begun to focus on the prevalence of people with mental health problems within the tobacco using population. An analysis of Quitline enrollment data shows that a very high percentage of registrants report mental health conditions (53%) and/or chronic health conditions (61%), with 39% of participants reporting both problems. Mental health and chronic health issues have a significant impact on Quitline outcomes and may require more tailored treatment methods than those provided for tobacco users with no reported health issues. Participants who report no health issues have a relatively high quit rate, at 37%. Those with both mental health and chronic health conditions are much less successful, with just 23% able to quit. The high proportion of Quitline registrants with health issues has a significant impact on the Quitline's overall quit rate of 27%.

Introduction

The Connecticut Department of Public Health (DPH) provides a comprehensive tobacco use prevention and control program which strives to enhance the well-being of Connecticut's residents by promoting tobacco-free lifestyles and by educating communities about the economic and health costs and consequences of tobacco use. The Connecticut Tobacco Quitline is one component of this comprehensive program.

About the Quitline

The Quitline is a free telephonic stop-smoking service offered to Connecticut residents. The Quitline provides up to five proactive counseling calls with a trained cessation counselor (10 calls are available to pregnant women). A free supply of nicotine replacement therapy (NRT) is offered to eligible callers. Those with commercial health insurance or Medicare may receive a 2-week supply; uninsured callers and those participating in Medicaid are eligible for an 8-week supply. Quitline services are provided under a contract with Alere Wellbeing, Inc. ("Alere").

About the evaluation

Alere is contracted to provide some Quitline evaluation services including monthly reports of Quitline use, conducting follow-up with callers to assess smoking status and satisfaction, and producing an annual report with quit rates and other information as requested by DPH.

DPH has also contracted with Professional Data Analysts, Inc. (PDA), to conduct an independent, comprehensive evaluation of the Connecticut DPH tobacco control efforts. This multi-component effort evaluates media campaigns, community-based cessation programs, as well as the Quitline. To date PDA's evaluation of the Quitline has included four main components. First, we produced quarterly reports that monitor Quitline implementation and service delivery. Second, we conducted a site visit at Alere to assess the vendor's staffing levels and quality assurance protocols. Third, PDA conducted an independent assessment of Alere's data collection processes and made recommendations to improve the alignment of data with NAQC minimal data set and the CDC's specifications for the National Quitline Data Warehouse. Finally, PDA has produced a series of annual reports describing the relationship between media promotion and Quitline call volume. These reports describe the number of callers, the Quitline's reach among all tobacco users in the state, and patterns of Quitline registration in response to media ads. For more information please see the FY-CY 2012 Adult Cessation Media report.

This report

This report is the final deliverable within PDA's Quitline evaluation component. It provides detailed analysis in three specific areas of interest identified by the DPH. Each section opens with a list of guiding Evaluation Questions to be addressed and closes with its own summary listing conclusions and recommendations. Section 1 provides counts of enrollment and enrollment trends. Section 2 focuses on fax referrals, including a description of the number and sources of referrals, the enrollment rate, and a comparison of self-referred and fax-referred callers on their use of Quitline services, quit rates, and satisfaction levels. Section 3 expands upon information provided by Alere in their Fiscal Year 2011-2012

Report[1] with an analysis of Quitline use, outcomes and satisfaction rates among callers who report mental health conditions and/or chronic health conditions.

Data sources and Methodology

The Quitline vendor provides a monthly Quitline Experience Extract (QEE), which contains intake data for all new registrants along with service use data documenting the number and type of counseling calls received by each registrant and the distribution of NRT. The vendor also provides a Registration Experience Extract, which provides additional detail about fax referrals and other registration processes. PDA analyzed these data for all callers who registered with the Connecticut Quitline during FY 2012 (July 1, 2011 – June 30, 2012). The vendor also provided a follow-up dataset, containing 7-month follow-up survey data for a sample of enrolled callers (N=1,926) who were selected for follow-up. From this sample, a total of 638 callers responded (33.1%) The follow-up dataset includes records of callers who registered between July 1, 2011 and March 31, 2012, or the first nine months of FY 2012.

Evaluation Questions

Content area	EQ	
Enrollment levels	1.	What are the numbers of new caller registrations?
	2.	How do enrollment patterns change over time?
Fax Referrals	3.	How many referrals does the Quitline receive?
	4.	Which agencies are the main sources of fax referrals?
	5.	What is the enrollment rate for fax-referred tobacco users?
	6.	How do characteristics of self- and fax-referred callers differ?
	7.	How do fax- and self-referred callers use the available Quitline services?
	8.	What are quit rates and satisfaction levels for fax- and self-referred callers?
Callers with mental health and chronic health conditions	9.	What proportion of all registered callers report a mental health condition, a chronic health condition, or both?
	10.	What are patterns of Quitline use for callers by health status?
	11.	What are quit rates and satisfaction levels for callers by health status?
	12.	What is the relationship between number of calls and quit rates for callers by health condition?

[1] Alere Wellbeing, Inc., *Connecticut Quitline Standard Annual Plus Mental Health 7-Month Evaluation Report, Fiscal years 2011-2012,* Alere Wellbeing, Inc., Seattle, 2012.

Section 1. Enrollment Levels

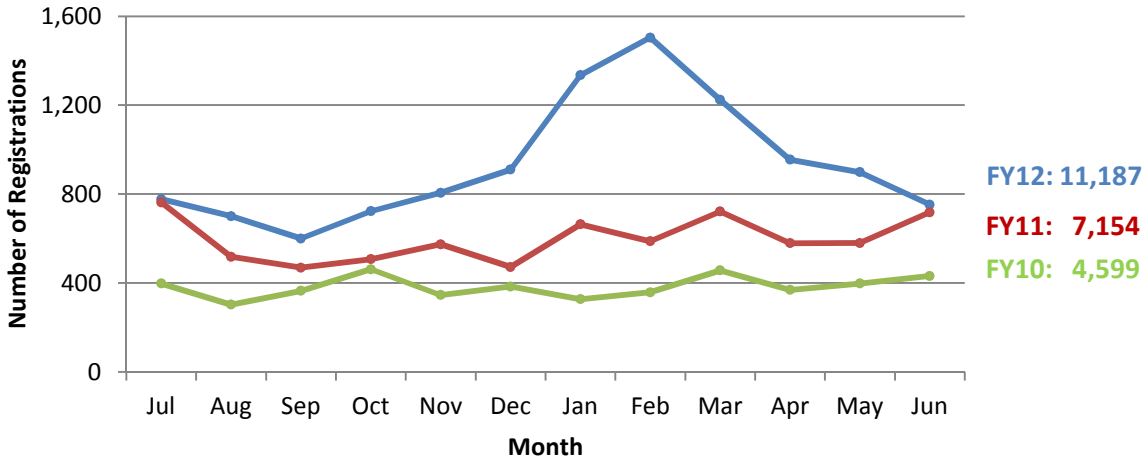
Summary

Connecticut Quitline registrations have increased steadily over the past three fiscal years. In FY12 a new high was reached with over 11,000 Quitline registrants. January, February and March 2012 were the peak registration period, with more than 1,200 callers each month. More than 9 out of 10 callers who register are tobacco users seeking help with quitting.

EQ. What are the numbers of new caller registrations? How do enrollment patterns change over time?

As shown in **Figure 1**, a total of 11,187 callers registered with the Connecticut Quitline during FY12. The total includes tobacco users calling for help with quitting, along with professionals, friends and family calling about helping others to quit. The number of FY12 registrations is a large increase over the number of registrations in FY11 (7,154) and FY10 (4,599). The majority of callers, 93%, are tobacco users calling for help with quitting (see Table 1). The increases in the call volume pattern mirror the timing of the CDC and CT media campaigns, which demonstrates the campaigns' effectiveness. (For more information, see the FY2012 Adult Cessation Media Report submitted by PDA under separate cover.)

Figure 1: Enrollment Trends: Quitline registrations by month for FY10, FY11, FY12



Note: Includes all caller types: tobacco users, professionals, friends and family, general public.

Table 1: FY12 registrants by caller type

Caller Type	N	%
Tobacco User	10,426	93.2%
Proxy	137	1.2%
Provider	151	1.3%
General Public	473	4.2%
Total new registrants	11,187	100.0%

Conclusions

The Quitline call volume and registration numbers have steadily and significantly increased over the last three fiscal years. This is in part a reflection of successful media efforts. DPH should continue their outreach and media efforts in order to maintain or further increase referrals and participation in the Quitline in order to help more CT tobacco users quit.

Section 2. Comparison of Self-referred and Fax-referred Callers

Summary

Fax referrals increased during FY12 compared to the previous year, both as an absolute number and as a percentage of all registrations. Nearly half of all fax referrals come from a single agency: Windham Hospital Emergency Department. About 36% of referrals result in an enrollment in the Quitline, which is within a typical range for U.S. quitlines.

Compared to self-referred callers, we find that fewer fax referred callers receive counseling. Of those who complete one or more counseling calls, fax-referred callers complete fewer total calls per person, and a smaller percentage of fax referred callers receive the free NRT supply than do self-referred participants.

However, among registrants who participate in counseling, outcomes do not differ for the two groups. Quit rates and satisfaction levels also do not differ by referral source.

Fax referral is an important source of Quitline registrations and is potentially lower-cost and more sustainable as a recruitment strategy than mass media.

Methods of entry to the Quitline

Callers may enter the Quitline program by four routes.

- ***Inbound call.*** This is the most common entry method. Callers may hear about the Quitline through the media, a referral from a physician, from a friend, or in other ways, and place a call to sign up. A total of 8,465callers, about 85%, enter this way (see Table 2).
- ***Fax referral.*** The Quitline service includes a process by which physicians and other healthcare providers connect patients to the Quitline via fax referral. Quitline counselors make outbound calls to referred patients and offer them Quitline services. Fax referrals can provide a low cost, sustainable method of increasing Quitline use. Nearly 8% of registrations, or a total of 780, originated as fax referrals.
- ***Online registration.*** Tobacco users may register for Quitline services online, at http://www.quitnow.net/connecticut. In FY12, 3% of registrations were made online.
- ***Outbound recruitment call.*** During times of low call volume, Alere may make outbound recruitment calls to callers who have registered previously but have not quit and are currently eligible to receive additional services. During FY11, outbound recruitment contributed substantially to Quitline volume. About 13% of registrations originated from outbound

recruitment calls. In FY12, there were far fewer registrations resulting from outbound recruitment (3.7% of all registrations), presumably because there was less need for this due to higher registration numbers. In the following section, when we compare fax-referred callers to self-referred callers, those enrolled via outbound recruitment are excluded.

Table 2. Method of entry to the Quitline by fiscal year

	FY 2011		FY 2012	
	N	%	N	%
Self-referral: inbound call	5,348	80.3	8,465	85.2
Self-referral: online registration	120	1.8	313	3.1
Fax referral	358	5.4	780	7.9
Outbound recruitment offer	833	12.5	372	3.7
Total	6,659	100.0	9,930	100.0

EQ. How many referrals are received by the Quitline?

During FY12, a total of 2,144 fax referrals were received by the Quitline. The number of fax referrals doubled from FY11 (1,073 referrals) to FY12.

EQ. Which agencies are the main sources of fax referrals?

Fax referrals were made by 34 different agencies during FY12. The top ten referring agencies are responsible for nearly all referrals (96%) A single agency, Windham Hospital Emergency Department, submitted nearly half.

Table 3. Referring Agency and number, percent of referrals made in FY12

Referring Agency	N	%
Windham Hospital Emergency Department	1,040	48.6
St. Vincent's Medical Center - Department of Emergency Medicine	398	18.6
Project E.D. Health IV Smoking Cessation Study- Yale New Haven	195	9.1
Smilon Cancer Center- Smoking Cessation Service	101	4.7
Dept of Emergency Medicine - St. Vincent's - Research Assoc Program	83	3.9
Jablow, Richard MD	78	3.6
Communicare, Inc.	73	3.3
Fair Haven Community Health Clinic	37	1.7
Community Health Resources	35	1.6
Ct Technical High School System	18	0.8
Other agencies (N=24)	86	4.1
Total	**2,144**	**100.0**

EQ. What is the enrollment rate for fax-referred tobacco users?

Once fax referrals are received by the Quitline, the vendor will make up to three call attempts to reach each tobacco user and enroll them in the program. Some callers are never reached, some decline services, some accept services, and a small percentage are found to be already enrolled in the Quitline. PDA combined data from two different sources to create an approximate enrollment rate for fax referrals.

- Monthly fax referral reports provided by Alere report that a total of **2,144 fax referrals** were received by the Quitline in FY 2012.
- Caller registration records (from the QEE) list a total of **780 registrations** resulting from fax referral.
- By dividing the number of fax referral registrations by the number of fax referrals received, we obtain an approximate **fax enrollment rate of 36%.**

PDA's review of published literature on enrollment rates from quitline fax referrals identified a wide range of reported enrollment rates for fax referral programs (21% - 53%). The 2010 NAQC Annual Survey of Quitlines[3] reports that among the 40 U.S. quitlines that responded to the survey, 41% of fax referrals resulted in a completed registration**. At 36%, the enrollment rate estimated for the Quitline appears to be typical.** Many factors can influence enrollment rate. The Quitline's protocol and enrollment processes can also influence enrollment rate. A good enrollment rate for a fax referral program may indicate effective attempts on the part of the Quitline to reach and enroll tobacco users. It may also indicate a strong referral system within the state, in which providers have been trained to provide brief interventions and appropriately refer callers who are ready to quit. If referrals tend to be tobacco users who have comorbidities, mental health issues, or substance abuse issues, the enrollment rate may be lower.

EQ. What is the health status reported by fax-referred vs. self-referred callers?

Overall, the differences in the health status of registrants from the two referral sources are very small. Similar proportions of both self-referred and fax-referred enrollees report chronic health conditions (CHC). However, fewer fax-referred callers report mental health conditions (MHC). At the time of the first call fax-referred enrollees report lower levels of motivation and confidence in their ability to quit.

EQ. How do fax- and self-referred callers use the available Quitline services?

Up to 5 counseling calls are offered to general Quitline participants and 10 are offered to pregnant women. After completing Quitline registration, callers are either transferred to a Quit Coach immediately for counseling, or an appointment is made for a callback. Not all registered callers follow through with the program or are successfully reached for counseling.

Overall, about 85% of Quitline callers complete one or more counseling calls, meaning that they receive at least minimal evidence based treatment. Far fewer fax-referred callers participate in counseling as compared to self-referred callers (see Figure 2 and Table 4). A potential explanation for this may be the lower levels of confidence and motivation reported by fax-referred callers.

Figure 2. Services received by fax-referred and self-referred participants

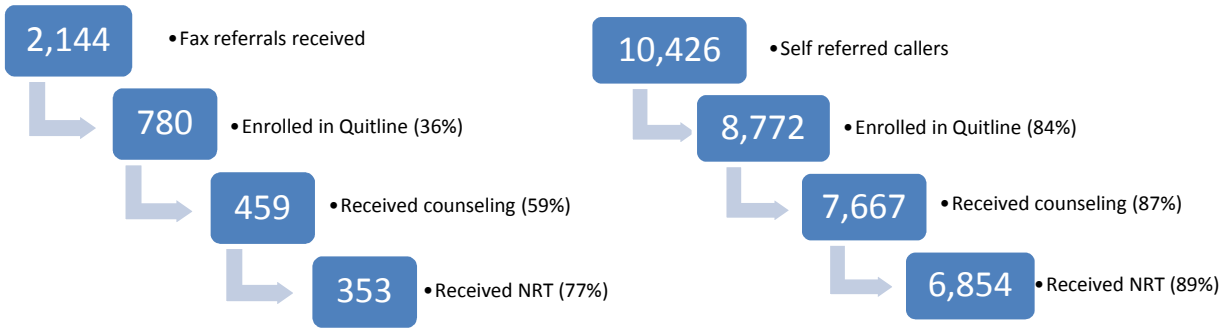


Table 4. Callers receiving minimal treatment (one or more calls) by referral source

Caller type	Received minimal treatment					
	Yes		No		Total	
	N	%	N	%	N	%
Self-referred	7,667	87.4	1105	12.6	8772	100
Fax referred	459	58.8	321	41.1	780	100
All callers	**8,126**	**85.1**	**1426**	**14.9**	**9552**	**100**

χ^2=459.95; df=1; p<.001

Once callers are connected with a Quit Coach, self-referred callers complete more calls (2.27 on average) than do fax-referred callers (2.01), although the difference is not large.

Table 5. Average number of counseling calls by referral source

Caller type	N	Mean	SD	SE
Self-referred	7,667	2.27	2.879	.033
Fax referred	459	2.01	2.440	.114

t^2= -2.246; df=537; p=.025

A majority of participants receive a free NRT supply from the Quitline (88.7%). Again, we find a significant difference in NRT distribution by referral source. A greater proportion of self-referred callers receive NRT as compared to fax-referred callers (89.4% vs. 76.9%).

Table 6. Received NRT by referral source

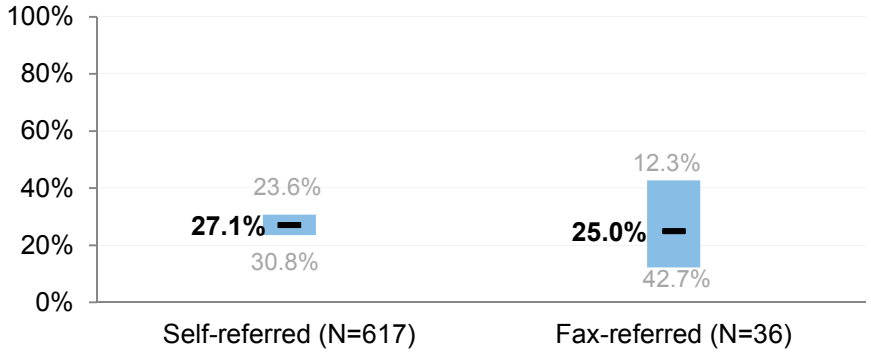
Caller type	Received NRT					
	Yes		No		Total	
	N	%	N	%	N	%
Self-referred	6,854	89.4	813	10.6	7667	100
Fax referred	353	76.9	106	5.6	459	100
All callers	**7,207**	**88.7**	**919**	**11.3**	**8126**	**100**

χ^2=67.35; df=1; p<.001

EQ. What are quit rates and satisfaction levels for fax- and self-referred callers?

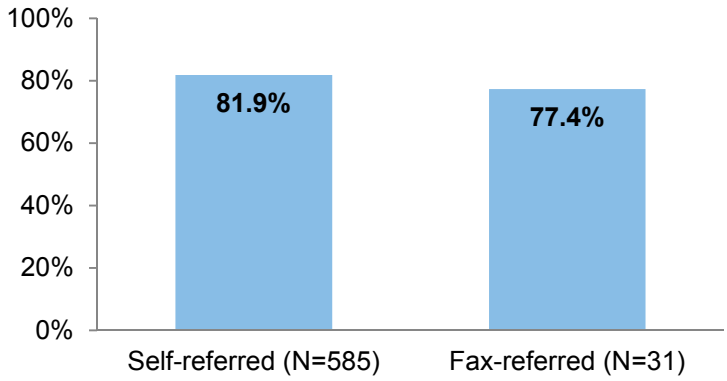
The quit rates for self-referred (27.1%) and fax-referred callers (25.0%) are not significantly different. Note that the number of fax-referred callers who completed the follow-up survey is small (N=36); this results in a very large confidence interval around the quit rate. Although the quit rates are similar, it is important to keep in mind the fact that far fewer fax-referred callers get connected to counseling. Those who drop out prior to counseling are excluded from the quit rate.

Figure 3. Quit rates by referral source (30-day point prevalence rates with 95% C.I.)



Satisfaction levels for the two groups are similar. Although the satisfaction level among fax-referred callers is slightly lower, the difference is not statistically significant. Based on our experience evaluating tobacco quitlines, PDA uses a benchmark for caller satisfaction levels; at least 80% of callers should report being very or mostly satisfied with quitline services. Satisfaction levels for self-referred callers meet this benchmark, while the levels for fax-referred callers falls just short (see Figure 4).

Figure 4. Percent very or mostly satisfied by referral source



Conclusions

Fax referrals to the Quitline from healthcare providers and other professional increased in FY12, both as an absolute number and as a percentage of registrations. Fax referrals result in fewer Quitline registrations and a lower level of program utilization as compared to self-referrals. This may reflect the readiness of the client who is referred; in other words, some tobacco users who are referred by a provider may not be ready or interested in quitting. However, referrals are an important and low cost strategy to increase treatment reach and result in similar quit outcomes as compared to self-referrals. We recommend the DPH continue efforts to build and strengthen referral networks in order to connect more tobacco users with cessation services. Additionally, DPH should be prepared to leverage upcoming changes in healthcare service delivery changes and electronic health record implementation under the Affordable Care Act as opportunities to increase fax referrals.

Section 3. Callers reporting Mental and/or Chronic Health Conditions

A recent report from the National Surveys on Drug Use and Health states that the smoking prevalence rate for people with a mental health condition (MHC) was found to be 36.1%, vs. 21.4% for the overall population. In other words, adults with mental illness are more likely to use cigarettes than people without mental health issues.[2]

The annual evaluation report produced by Alere included a special module focusing on Quitline callers who report a mental health condition in their history. The report presented several important findings, such as that respondents without a chronic health condition (CHC) had significantly higher quit rates than those with a CHC, and that those with a MHC report similar quit rates as those with no MHC. This report expands upon these findings and explores additional areas of interest identified by the DPH, namely the differences in registrations, quit outcomes, satisfaction rates, NRT shipments, and minimal treatment of registrants with MCHs, CHCs, and MHC/CHC comorbidity.

Summary

More than half of Quitline registrants (53%) report they have been treated for or diagnosed with a MHC and an even larger proportion (61%) report that they have one or more chronic health condition (CHC). The Quitline is effectively reaching and serving a higher percentage of smokers with a MHC than is represented in the general smoking population. Furthermore, there is a great deal of overlap between these caller groups. Approximately 39% of callers report both a MHC and CHC. Only 23% of participants report no health problems.

The majority of Quitline callers receive at least minimal evidence-based cessation treatment, defined as one or more counseling calls. A greater proportion of callers who report a MHC or both a MHC and CHC receive cessation treatment than do those with CHC only or no health issues. The Quitline is successful in providing treatment to the priority population of smokers with a MHC. The majority of callers receive NRT from the Quitline to aid them in their quit attempt (88.7% overall).

Among all survey respondents, the percentage reporting no tobacco use at the time of follow-up is 27.1%. Although there are significant differences between health condition groups, the highest quit rate is for callers with no health conditions at 36.6%, closely followed by callers with MHC only at 35.5%. Participants with CHC only had a quit rate of 26.6%, and those with both CHC

2 Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (February 5, 2013). *The NSDUH Report: Smoking and mental illness*. Rockville, MD.

and MHC have the lowest rate at 22.8%. This is important to consider when examining the overall quit rate, as although it is a marker of success that the Quitline is serving a high proportion of callers with MCH and CHCs, this dynamic does negatively impact the overall quit rate.

The satisfaction rates of the individual health groups and the study group overall met PDA's recommended goal of 80%, with 81.7% of the total group reporting being "very" or "mostly" satisfied.

Data sources

In this section we utilized the follow-up survey set (N=638 survey respondents) provided by the Quitline vendor to report on quit rates and satisfaction levels. Whenever possible, we used the larger Quitline Experience Extract (N=9,930 unique tobacco users who registered with the Quitline) to describe participant characteristics and the extent to which they used Quitline services. Both datasets consist of callers who registered during FY12.

EQ. What proportion of all registered callers report a mental health condition, a chronic health condition, or both?

Participants are asked at intake and throughout the counseling process whether they have a history of MHC. This is defined as having received a diagnosis of or received treatment for any of the following:

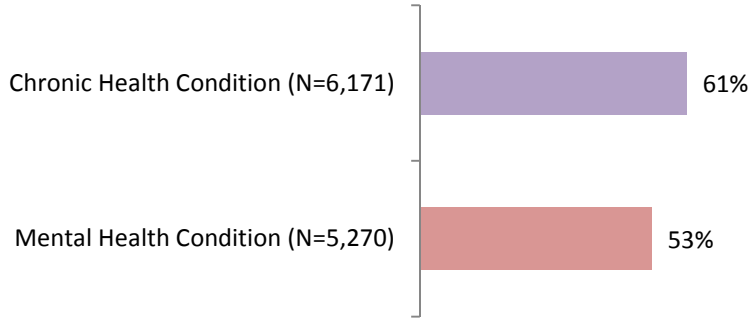
- Depression
- Generalized Anxiety Disorder
- Drug or alcohol abuse (SUD)
- Bipolar Disorder
- Post-traumatic Stress Disorder (PTSD)
- Schizophrenia
- Attention-Deficit Hyperactivity Disorder (ADHD)
- Gambling Addiction

Participants are asked at intake and during counseling whether they live with any of the following chronic health conditions:

- High blood pressure
- High cholesterol
- Chronic Pain
- Arthritis
- Asthma
- Chronic Obstructive Pulmonary Disease/emphysema
- Diabetes
- Coronary Artery Disease (CAD)
- Cancer
- Stroke

The majority of Quitline callers report health issues at the time they register with the Quitline (Figure 5). More than half of registrants (53%) report a history of mental health condition (MHC). An even larger proportion (61%) reports the presence of a chronic health condition (CHC). Therefore the Quitline is successfully reaching callers from these high priority populations with higher tobacco use prevalence than the general population.

Figure 5. Callers reporting health conditions



Categories are not mutually exclusive; individual callers may report both CHC and MCH.

Further analyses demonstrated that there is a great deal of overlap between these two caller groups. We combined callers' responses to the two health assessment questions listed above to create mutually exclusive categories: no health conditions, CHC only, MCH only, or both CHC and MCH. The largest proportion of callers reports both a mental and chronic health condition (39%,
Table **7**). An additional 22% report CHC only, and 15% report MCH only. Just 23% of registrants report no health problems at the time of registration.

Table 7: Chronic and Mental Health conditions reported at intake

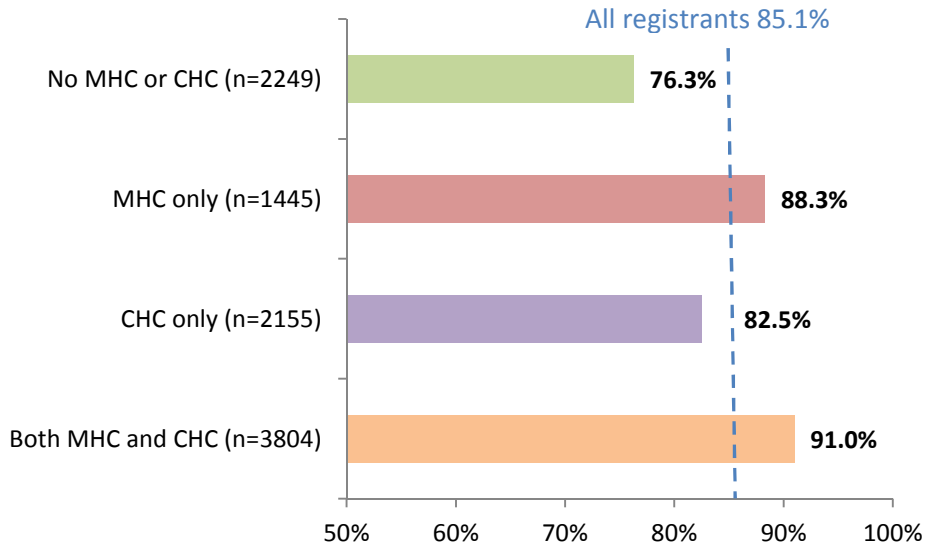
	N	%
No chronic or mental health conditions	2,249	23.3
Mental health conditions only	1,445	15.0
Chronic conditions only	2,155	22.3
Both mental health and chronic conditions	3,804	39.4
Total*	9,653	100.0

*Missing=277

EQ. What are patterns of Quitline use for callers by health status (MHC, CHC, both, none)?

Overall, about 85% of Quitline callers complete one or more counseling calls, meaning that they receive at least minimal evidence based cessation treatment. A greater proportion of callers reporting either MHC only or both MCH and CHC receive evidence based treatment. Conversely, fewer callers reporting CHC only and fewer who report no health issues receive treatment.

Figure 6: Received minimal treatment (1 or more counseling calls) by mental and chronic health status



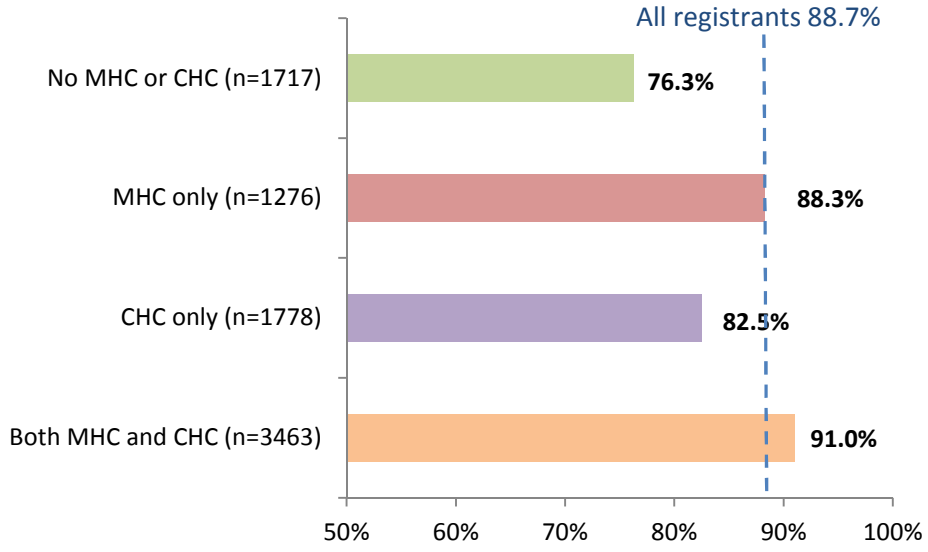
χ^2 = 267.455, df=3, p<.001; Source: Quitline experience extract

The sample size is smaller from this point forward, as it now only includes those who have received minimal treatment through 1 or more counseling calls or NRT.

The Quitline offers a free NRT supply to adult callers who are ready to quit and pass a medical screen. Callers who are uninsured or participate in Medicaid may receive up to an 8-week supply of NRT. Callers who are privately insured and those in Medicare may receive a 2-week supply.

Among all callers who participate in counseling (N=8234) 88.7% receive free NRT. Among callers reporting MHC, with or without a CHC, the proportions receiving NRT are larger, 89% - 91%. Among callers reporting CHC only and callers who report no health conditions, the proportions receiving NRT are smaller, at 87%. Although the differences in NRT receipt among these groups are statistically significant, the sizes of the differences are small, and a large majority of callers in all health groups receive NRT to help them with quitting.

Figure 7: Shipped NRT by mental and chronic health status



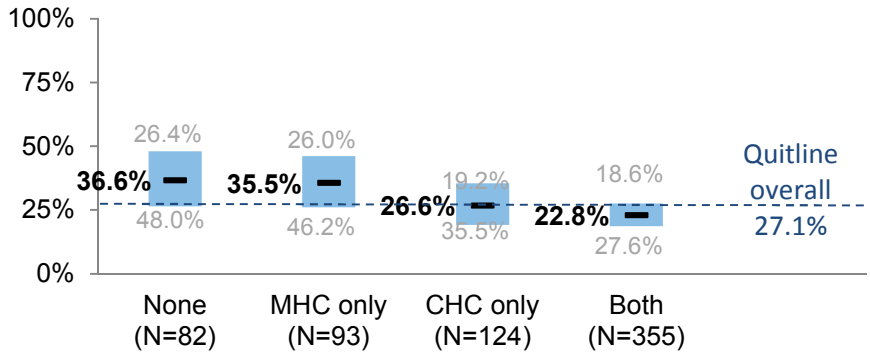
χ^2 = 12.344, df=3, p=.006; Source: Quitline experience extract

EQ. What are quit rates and satisfaction levels for callers by health status (MCH, CHC, both, none)?

Among all survey respondents, the percentage reporting no tobacco use at the time of follow-up is 27.1% (95% C.I. 23.7 – 30.7%).

When comparing callers in the different health condition groups, we do see significant differences in their quit rates. Callers with no health conditions and those with MCH only have the highest quit rates, 36.6% and 35.5%, respectively. Callers with CHC only have a quit rate of 26.6%, nearly the same as that of the Quitline overall. Callers reporting both CHC and MHC have less success at quitting, with a lower quit rate of 22.8%. These findings are similar to those reported in the Alere December 2012 Quitline Evaluation Report.

Figure 8: Quit Rate by chronic and mental health status (30-day point prevalence with 95% C.I.)



χ^2 = 10.363, df=3, p=.016; Source: Follow-up data

Quitline satisfaction rates meet PDA's recommended goal of 80% with the overall percentage of those reporting being very or mostly satisfied at 81.7%. The lowest satisfaction rate reported by any group was 79.5% by those with,and the highest being those with a MHC only at 88.1%.

Table 8: Satisfaction by chronic and mental health status

	Very/mostly satisfied		Somewhat/not at all satisfied		Total	
	N	%	N	%	N	%
None	68	87.2%	10	12.8%	78	100%
CHC only	92	80.0%	23	20.0%	115	100%
MHC only	74	88.1%	10	11.9%	84	100%
CHC and MHC	267	79.5%	69	20.5%	336	100%
Total	501	81.7%	112	18.3%	613	100%

NS. Source: Follow-up data

What is the relationship between number of calls and quit rates for callers by health condition?

In order to explore the differences in quit rates by the number of calls according to health status, rates were analyzed by comparing those with MHCs to those without, and then those with CHCs to those without. The highest quit rate for any group upon the completion of five or more calls was that for callers with no health conditions at 66.7%. Because cell sizes were too small if examined exclusively, the samples for both MHC and CHC include callers reporting conditions within both categories. In both instances, participants with no health issues report better quit rates overall by program completion at five or more calls and overall exhibit a typical dose-response relationship. Upon the completion of five calls, participants with CHCs report a 13 percentage point lower quit rate (29.1%) than those reporting

no CHC (42.1%). The greatest divergence between those two categories, however, is at the three call level. At that dose, those with no CHC have a 25.9 percentage point higher quit rate (50%) than those with CHCs (24.1%).

The pattern for participants with MHCs is slightly different. The quit rates for those with MHCs and those without follows a similar pattern until five calls, at which point they diverge greatly, with the final quit rate for those without a MHC being 65.2%, and those *with* a MHC being 22.4%, a difference of 42.8 percentage points. The noticeable difference in final quit rates for those who complete the five call program suggests that those with either or both a MHC or CHC have a more difficult time quitting smoking than those without.

Figure 9: Quit rate by number of calls and CHC

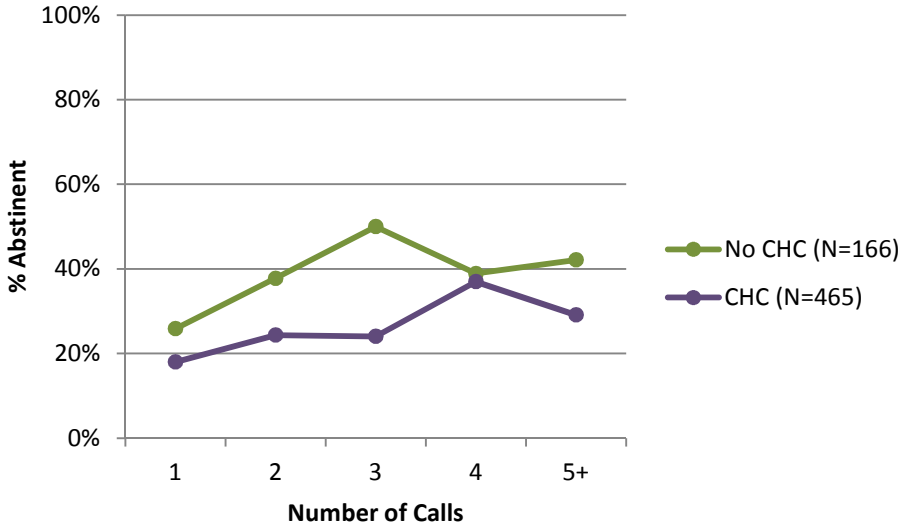
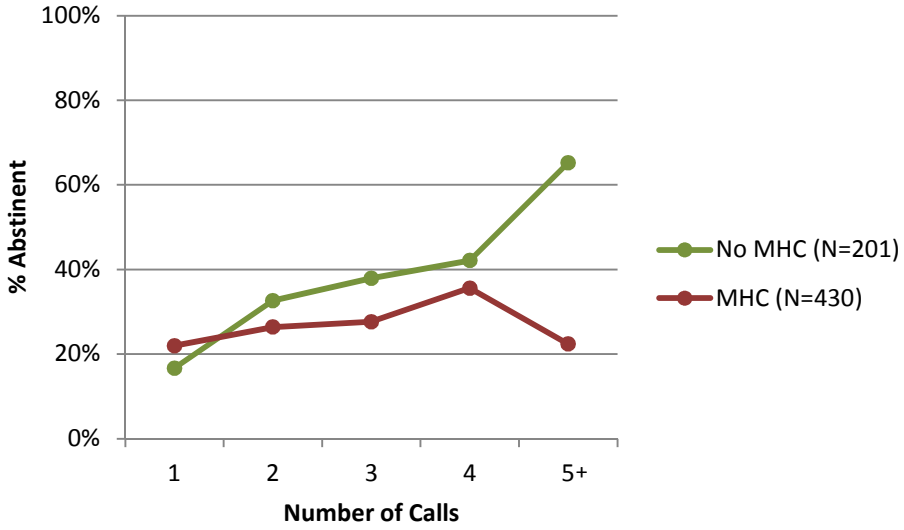


Figure 10: Quit rate by number of calls and MHC



Conclusions

Quitline registrants report very high rates of MHCs and CHCs, which impacts both utilization and outcomes for the Quitline. Although it is important to serve these priority populations, there is no consensus within the cessation services field as to how best accomplish this. DPH should continue to monitor these populations and understand how they impact Quitline analysis. Additionally, DPH should keep abreast of research developments as more information becomes available on how to best serve these clients and support them in their quit attempts.

Conclusions and Recommendations

Enrollment Trends: During the last three fiscal years, the Connecticut Quitline has more than doubled program registrations to nearly 11,000 in FY12 and therefore helped many more tobacco users quit.

Fax Referrals: Fax referrals to the Quitline from healthcare providers and other professionals increased in FY12, both as an absolute number and as a percentage of registrations. Fax referrals result in fewer Quitline registrations and a lower level of program utilization as compared to self-referrals. However, referrals are an important and low cost strategy to increase treatment reach and results in similar quit outcomes as do self-referrals. Provider referral is an important source of Quitline registrations and is potentially lower-cost and more sustainable as a recruitment strategy than mass media. We recommend the DPH continue efforts to build and strengthen referral networks in order to connect more tobacco users with cessation services. Additionally, DPH should be prepared to leverage upcoming changes in healthcare service delivery changes and electronic health record implementation under the Affordable Care Act as opportunities to increase fax referrals.

Mental and Chronic Health Conditions: From examining the Quitline intake data, we ascertained that only 23% of participants report they have no mental or chronic health conditions. This means that the Quitline is effectively reaching and serving a higher percentage of smokers with mental and chronic health conditions than is present in the general smoking population. Furthermore, there is a great deal of overlap between these caller groups. The largest proportion of Quitline callers has both a MHC and CHC. The majority of Quitline callers receive at least minimal evidence-based cessation treatment, defined as one or more counseling calls. A greater proportion of callers who report a MHC or both a MHC and CHC receive minimal evidence based treatment than do those with CHC only or no health issues. The Quitline is successful in providing treatment to the priority population of smokers with a MHC. The majority of callers receive NRT from the Quitline to aid them in their quit attempt (88.7% overall).

Among all survey respondents, the percentage reporting no tobacco use at the time of follow-up is 27.1%, although there are significant differences between health condition groups. The highest quit rate is for callers with no health conditions at 36.6%, closely followed by callers a MHC only at 35.5%. Participants a CHC only had a quit rate of 26.6%, and those with both CHC and MHC have the lowest rate at 22.8%. This is important to consider when examining the overall quit rate, as although it is a marker of success that the Quitline is serving a high proportion of callers with MCH and CHCs, this dynamic does impact the overall quit rate.

Although it is important to serve these priority populations, there is no consensus within the cessation services field as to how best accomplish this. DPH should continue to monitor these populations and understand how they impact Quitline utilization and outcomes. Additionally, DPH should keep abreast of research developments as more information becomes available on how to best serve these clients and support them in their quit attempts.