Connecticut Community & SMI/SUD Tobacco Cessation Grant Initiative: 2011 Annual Evaluation Report

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Introduction

In September 2009, the Connecticut Department of Public Health (CT DPH) funded community and specialized tobacco cessation treatment program as part of Connecticut's comprehensive tobacco control program. As part of this initiative, six community-based organizations[1] as well as a collective of several behavioral health organizations that serve severely mentally ill and substance use dependent (SMI / SUD) populations[2] throughout the State of Connecticut were awarded two-year contracts[3] to implement tobacco cessation programming.

As part of this initiative, CT DPH also awarded Professional Data Analysts, Inc. (PDA) with a contract to conduct an external process and outcome evaluation of the community and SMI / SUD programs. PDA's evaluation built on the data collection system developed by CT DPH and previous evaluation contractors.

During the two-year contract period, PDA worked with each grantee agency to provide technical assistance around the data collection system and forms designed by CT DPH. Additionally, PDA provided quarterly reports based on grantee-collected data which summarized grantee program activities, participant characteristics and participant outcomes as well as provided recommendations for programming and data collection improvements.

The following report provides an overview of grantee programs and program outcomes in aggregate as well as by grantee agency for the period of September 2009 through June 2011.

Please contact Traci Capesius, M.P.H., Evaluation Specialist at PDA, with questions, comments, or concerns about this report.

[1] The six community organizations are as follows: AIDS Project New Haven (APNH), Fair Haven Community Health Center (FHCHC), Generations Family Health Center (GFHC), Harford Gay & Lesbian Health Collective (HGLHC), Ledge Light Health District (LLHD), and the Hospital of Saint Raphael—Haelen Center (St. Raphael).
[2] CommuniCare, Inc. (CCI)
[3] Mid-way through the two-year period, the contracted behavioral health organization, CommuniCare, Inc., was provided with a contract extension for an additional year.

Table of Contents

Executive Summary

The purpose of the 2011 Connecticut Community & SMI/SUD Tobacco Cessation Program Annual Report is to highlight the work of six community agencies, whose CT DPH tobacco cessation grants are coming to a close in December 2011, as well as to highlight progress made to date of the SMI/SUD tobacco cessation programs that will be continuing programming for another year. The following are some key findings contained in the report:

Key Successes

- Most grantees have been able to successfully recruit clients from within their agency's existing client base.
- Grantees served about 1,400 unique tobacco users between September 2009 and June 2011.
- All grantees provided tobacco cessation services to underserved populations with high rates of tobacco use, such as Black or African-American, LGBT and Hispanic/Latino tobacco users as well as tobacco users with a high school degree or less, those that have annual incomes of less than $15,000, and those that rely on government-sponsored health insurance. Most program participants also reported either past or present treatment for one or more physical or mental health conditions.
- Over a quarter (27%) of program participants attended five or more cessation counseling sessions and 60% attended 1-4 sessions during their most recent enrollment. If session attendance is summed across participant's multiple enrollments, on average, participants attended 4.5 sessions. This level of attendance is at or above those found in studies of similar face-to-face programs.
- Most program participants appear to have made quit attempts during or after program enrollment and most reported using one or more cessation medications to help them quit.
- Program participants that were not able to quit tobacco use completely appear to have been able to substantially decrease the number of cigarettes smoked per day since enrolling in a grantee program.
- Program participants also report making changes in smoking habits that likely helped reduce their tobacco consumption as well as reduce the tobacco smoke exposure of others at home, work, and in other public places.
- Almost all community and SMI/SUD organizations implemented one or more tobacco-related systems change activities aligned with best practices in tobacco cessation.

Key Challenges

- For some agencies, recruitment of certain target populations was very difficult. This typically occurred when the target population was either an expansion of or a shift away from the typical client base of the agency.
- The largest challenge for most grantees was data collection. While data collection on some key forms such as program enrollment and attendance tracking improved and were

generally complete, grantees were challenged to meet the remaining data collection requirements. The remaining data collection elements are somewhat out of the scope of the typical practice or experience of grant staff. Overall, the burden of data collection on grantees was too great, with eight separate forms to keep track of, many of which were used for multiple purposes. This was particularly true for programs where the counselor was also the data collector and data entry person. In general, grant staff typically do not have the right experience, training or resources to adequately administer follow-up surveys. Unfortunately, this led to a lack of outcome data for most grantees.

Key Recommendations

- Optimally, grantees should be contracted to populations of tobacco users that reside within their typical client base. If grantees are required to recruit from outside of their client base, they should be provided with more time and resources to reach these tobacco users.
- In order to recruit participants from within an agency's existing client base, key agency staff should be trained to provide brief intervention and referrals to cessation services. If on-site cessation services are not available, agency staff should be trained to provide referrals to the Connecticut Quitline.
- If grantee agencies are expected to bring in and serve a larger volume of program participants, a larger budget for programming and, perhaps, broadcast media would be necessary. Additionally, the Connecticut Quitline could become a good source of referrals to community programs for callers that request additional assistance and/or are looking for face-to-face resources as long as the CT Quitline is regularly provided with contact information for all currently funded programs.
- Given the numbers of clients served by community grantees, it may be reasonable to assume that similar organizations may be able to serve 100-200 unique individuals in a two-year grant period, particularly if grantee data collection responsibilities decrease substantially. Additionally, more mature programs could be expected to serve a greater number of participants.
- Grantees should only be expected to collect marketing data, enrollment data, track program utilization (sessions/minutes) and NRT distribution, maintain participant contact information, and, where appropriate, administer post-training forms to clinicians and providers implementing brief tobacco cessation interventions.
- Participant outcomes should be collected 7-months post program enrollment per established standards in the field, using standardized questions such as those developed by the North American Quitline Consortium (NAQC MDS) and which are now being used by the Centers for Disease Control and Prevention. Additionally, follow-up data collection should be conducted by an external agency with experience collecting similar data or grantees should be provided with substantially larger data collection budgets and training on data collection.

Background

Since September 2009, PDA's process and outcome evaluation has built on the data collection system and evaluation strategy developed by CT DPH and previous evaluation contractors. PDA's strategy has been to implement process measures aimed at identifying areas for improvement in service delivery, assuring program accountability and quality, and monitoring program outcomes and effectiveness. To this end, PDA has provided technical assistance to the following seven funded cessation grantees—AIDS Project New Haven (APNH), Fair Haven Community Health Center (FHCHC), Generations Family Health Center (GFHC), Harford Gay & Lesbian Health Collective (HGLHC), Ledge Light Health District (LLHD), and the Hospital of Saint Raphael—Haelen Center (St. Raphael)—to help them comply with the CT DPH data collection requirements and summarize evaluation data.

Grantee Technical Assistance

Technical assistance for grantees consisted of annual in-person site visits, telephone and email communications, a webinar, and a technical assistance web portal (www.pdastats.com/conn) where grantees could ask questions and obtain data collection documents, instruction manuals, and training materials produced by CT DPH and PDA[4]. Additionally, each quarter PDA produced a graphic dashboard report and brief narrative report based on data collected by grantees. These reports highlighted program participant demographics, clinical characteristics, patterns of program utilization and short-term, intermediate and long-term outcomes. In addition to summarizing grantee data, these reports highlighted grantee successes, challenges and provided recommendations for data collection and programming specific to each agency. PDA reviewed these reports with grantees quarterly. PDA also produced spreadsheets for each grantee, which helped them track when each program participant was to be contacted to complete a follow up survey. Additionally, PDA worked internally and with CT DPH to conduct quality assurance checks of grantee data and provide grantees with the opportunity to correct data errors.

Evaluation Technical Assistance to CT DPH

In addition to working with each grantee to help them comply with DPH data collection requirements, PDA worked with CT DPH to provide suggestions to help align data collection and evaluation components with best practices in the field of tobacco cessation program evaluation. To this end, PDA produced documents with suggested changes, conducted in-person and telephone conversations with key CT DPH grant staff, and provided suggestions (by grantee agency and in aggregate) within quarterly narrative reports.

[4] Detailed documentation of grantee technical assistance has been provided to CT DPH as part of PDA's quarterly administrative reporting.

Purpose of the 2011 Annual Report

The purpose of the current, 2011 Annual report is to highlight the work of the six community agencies, whose CT DPH tobacco cessation grants are coming to a close in December 2011, as well as to highlight progress made to date of the CommuniCare SMI/SUD tobacco cessation programs that will be continuing programming for approximately another year.

To this end, the report provides a snapshot, in aggregate and by grantee agency, of cessation programming that has occurred to date under this funding initiative. This includes a description of program participant demographic and clinical characteristics, program utilization, short-term, intermediate and long-term participant outcomes, cost effectiveness, and the potential for sustainability of tobacco cessation efforts. These analyses will help to provide answers to the following evaluation questions:

- *What are the characteristics of cessation services provided by the funded programs?*
- *To what extent are programs engaging in marketing and outreach activities?*
- *What referral mechanisms appear to be the most successful?*
- *What are the characteristics of clients served by the programs?*
- *To what extent are programs serving their targeted populations?*
- *To what extent are programs serving the number of clients they were contracted to serve?*
- *To what extent are clients utilizing cessation services provided by the funded programs?*
- *To what extent are all necessary data being collected?*
- *What is the reach of the initiative overall?*
- *How satisfied were clients with the services they received?*
- *How satisfied are health care providers within each program?*
- *What are tobacco abstinence rates for each program and the initiative overall?*
- *What is the cost per enrollment and cost per quit for the intervention?*
- *What kind of systems change do programs report?*
- *What additional resources did grantees leverage for their tobacco cessation programs?*
- *What are successes and challenges for the initiative overall?*

In addition to answering the evaluation questions listed above, the report aims to provide recommendations for programming and data collection for future CT DPH tobacco cessation funding initiatives.

Methodology

Data Sources

Programmatic Data

Grantees were required by CT DPH to collect program data using the following eight forms: Referral/Enrollment Form, Attendance Tracking (NRT Log[5])/Program Completion (Drop-Out, Relapse Prevention) Form, Patient Satisfaction Form, Marketing Activity Tracking Form, Pregnancy Outcome Form, DHHS Training Post-Test Form, Provider Input Form, and Follow-Up Form (3, 6, 9 and 12 months; changed to 4 and 7 month forms in early 2011). CT DPH and previous evaluation contractors developed these forms as well as a corresponding database for entering data collected with these forms. CT DPH provided each grantee with MS Word and Adobe PDF versions of each form as well as a copy of a corresponding MS Access database into which grantees entered data from the forms or entered data in real time as it was collected.

Each quarter, grantees exported data from their DPH Access database and sent the data to CT DPH. CT DPH then cleaned and processed the data, conducted some quality checks and asked grantees for data corrections (to be completed before the next quarter's data export). CT DPH then de-identified the data files in preparation for sending to PDA for analysis. CT DPH then exported each data table in their cumulative DPH database into text files, encrypted the files and transferred them to PDA via a secure FTP site. The transferred files corresponded to each of the above-mentioned data collection forms: enrollment and referral, attendance tracking and program completion, NRT log (new to most recent export), pregnancy outcome, follow-up (all time points), patient satisfaction, DHHS Training Post-Test, Provider Input, and Marketing Activity Tracking. PDA cleaned these files using SPSS V. 18.0. All client ID's and enrollment ID's were verified to be identical per table; any null or invalid rows are deleted. The report sets were then created for each form and sent to sql server for reporting quarterly. More information on the attrition of data by report section is provided in Appendix C of the aggregate dashboard report. Also see Appendix A of the aggregate dashboard for a primer on tobacco abstinence rate calculations.

2010 Connecticut BRFSS

Data from the 2010 Connecticut Behavioral Risk Factor Surveillance System (BRFSS) survey was downloaded by PDA from the CDC's BRFSS website (http://www.cdc.gov/brfss). Demographic characteristics of cigarette smokers in Connecticut were extracted and 2010 Census population weights were applied.

[5] The NRT log was added to this form in early 2011.

Cost Data

Cost data used in the cost-per-quit and cost-per-enrollment analyses were calculated using: 1) the quarterly payment schedules outline in each community grantee executed contract (grantee costs)[6]; and, 2) an estimate of the proportion of costs typically associated with managing a grant initiative, as published in available research. It was necessary for PDA use an estimated amount of administrative costs as actual administrative costs were not available through CT DPH. It was suggested that PDA utilize an estimate that is based on an industry standard. To this end, PDA reviewed published studies, working papers, and government documents related to grant administration costs[7,8,9,10,11]. From these sources, PDA estimated the proportion of costs expended by CT DPH on administering the community grants to be 7% of the total grant awards scheduled to be paid to grantees for the fiscal period of July 1, 2010 through June 30, 2011 (FY 2011).

Calculations

Program Reach

Reach was calculated based on standards set for the North American Quitline Consortium for calculating "promotional" reach[12]. Data on the number of enrollees, 18 years of age or older, and who enrolled in cessation services in one of the community or SMI/SUD cessation programs were extracted from programmatic data collected by grantees and provided by CT DPH. Unique participants that enrolled between January 1, 2010 and December 31, 2010 were included in the reach dataset. This time frame was chosen due to CT BRFSS data being collected on a calendar year. Additionally, tobacco use status was collected in a similar manner across program sites during this time.

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[6] This analysis excludes the severely mentally ill and substance use dependent (SMI/SUD) grantee agencies that provide services under CommuniCare, Inc. (CCI). CCI was excluded as it is not currently possible to confidently define unique costs and quit rates for CCI participants in preparation versus action.

[7] Rooney, P and Frederick H.K. "Paying for Overhead: A Study of the Impact of Foundations' Overhead Payment Policies on Educational and Human Service Organizations." The Aspen Institute: Nonprofit Sector Research Fund March 2007. http://www.philanthropy.iupui.edu/research/workingpapers/payingforoverhead.pdf.

[8] Bedsworth, W, Goggins, A., Howard, G, and Howard D. "Nonprofit Overhead Costs: Breaking the Vicious Cycle of Misleading Reporting, Unrealistic Expectations, and Pressure to Conform." The Bridgespan Group, Inc. April 2008. http://www.bridgespan.org/nonprofit-overhead-costs-2008.aspx.

[9] Frumkin, P. and Kim, M.T. "Strategic Positioning and the Financing of Nonprofit Organizations: Is Efficiency Rewarded in the Contributions Marketplace?" Harvard University Working Paper No. 2. The Hauser Center for Nonprofit Organizations and The Kennedy School of Government. October 2000. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=253115.

[10] Office of Management and Budget. (May 10, 2004). OMB Circular A-87. Washington, DC: U.S. Government Printing Office. Retrieved September 15, 2011 from the World Wide Web: http://www.whitehouse.gov/omb/circulars_a087_2004/.

[11] Office of the State Comptroller. (April 2000). State of Connecticut Comptroller's Manuals: Indirect Cost and Fringe Benefit Cost Recovery Manual. State of Connecticut. September 15, 2011 from the World Wide Web: http://www.osc.ct.gov/manuals/indirectcosts/manual.htm.

[12] NAQC. (2009). Measuring Reach of Quitline Programs. Quality Improvement Initiative (S. Cummins, PhD). Phoenix, AZ.

Promotional reach, in this case, is defined as the proportion of tobacco users in the population who were served by the community and SMI/SUD cessation programs. Typically, the numerator includes the number of unique tobacco users served by a program divided by the number of tobacco users in the target population. However, since the denominator for the calculation is based on the 2010 CT BRFSS, which only includes current ("every" or "someday") cigarette users, the numerator only includes people that were current cigarette users when they enrolled in the program. Exclusive "other" tobacco users and those that were quit for more than 30 days at enrollment were removed from the dataset.

Tobacco abstinence rates

Two 30-day point prevalence abstinence rates (responder and ITT) were calculated in aggregate and for grantee programs with 30 or more 4-month and 30 or more 7-month follow-up surveys. Program participants were considered to be abstinent at follow-up if they had not used any tobacco for 30 or more days at the time they completed the follow-up survey. Those that were abstinent at program enrollment were excluded from abstinence calculations at follow-up. Grantees were responsible for collecting 4 and 7-month follow-up data. The attached aggregate dashboard report includes appendices that provide additional information about those that were included in the 4 and 7-month calculations as well as a *Primer on Tobacco Abstinence Rates*, which provides an explanation of the different rates.

Cost Analysis

Cost-Per-Quit

The purpose of a cost-per-quit (CPQ) analysis is to assess the cost-effectiveness of a program in terms of the primary outcome for that program. In the case of CT DPH's community tobacco cessation programs, this means that a CPQ analysis assesses cost effectiveness in terms of the number of people who stop smoking after attending a grantee cessation program. Benefits of a CPQ analysis include that it is easily understood and can be consistently calculated for other cessation programs funded by the CT DPH, such as the Connecticut Quitline, which would allow the cost effectiveness of the two interventions to be compared. Similarly, CPQ has been calculated for other states' cessation programs, to which CT DPH's initiative may also be compared. Since the CPQ analysis is specific to the outcome of tobacco cessation programs (i.e., quitting tobacco), the results may not be directly compared to other non-tobacco cessation public health interventions such as flu vaccines, immunizations, diabetes control programs, etc., as is typical of other studies of cost-effectiveness.

In the current analysis, CPQ is a ratio composed of two components: (1) the marginal direct, indirect and media costs as the numerator, and (2) the preferred health outcome in the denominator, which in this case is the number of people estimated to have quit using tobacco (at 4-months post-

Figure 1. Cost Per Quit Calculation

$$\frac{\text{Marginal Direct, Indirect and Media Costs}}{\text{Total number of "quits" as a result of the cessation program}} = \text{Cost per Quit Ratio}$$

enrollment[13]) as a result of participating in a community cessation program (see Figure 1) for the 2011 Fiscal Year (7/1/2010-6/30/2011).

It is important to reiterate that this analysis has been conducted for community grantees with 30 or more completed 4-month follow-up surveys and for the initiative overall. However, the analysis does not include the programming conducted for the severely mentally ill and substance-use dependent (SMI/SUD) population served by the CommuniCare (CCI) sub-grantees. CCI was excluded as it is not currently possible to confidently define unique costs and quit rates for participants in preparation versus action. Additionally, the CCI grant extends longer than the other six community grants and CCI projects have found it necessary to spend a larger amount of time obtaining buy-in at each sub-agency to address tobacco use[14] , so a CPQ analysis of the CCI programs as this time would not reflect the cessation programs at the height of their maturity. CPQ results will be presented for individual community grantees that meet the minimum requirements to have cost per quit calculated for them[15], and for the community grant initiative in aggregate (i.e. all six community programs combined).

Cost-Per-Enrollment

A cost-per-enrollment (CPE) analysis was conducted to show the variation in the number of unique enrollments by the grant amount paid to each grantee in FY 2011. The benefit of this analysis is that, unlike the CPQ analysis, it can be conducted for all programs, which allows for comparisons between programs. The limitation of this analysis is that it does not take into account the relative efficacy of each program in helping clients quit. CPE was calculated by dividing the total cost (same costs as in CPQ analysis) by the number of eligible enrollees in FY 2011. The CPE analysis was conducted for individual programs and all programs combined (community and SMI/SUD).

It is important to note that the audience for this report is the Connecticut Department of Health (CT DPH) and only includes program costs (scheduled grant disbursements and estimated CT DPH administrative costs). Costs incurred by participants or by the society at large are not included in either the CPQ or CPE analyses (as is often the case in studies of cost effectiveness).

Response Bias Analysis

Response bias analyses were conducted for program completion / drop-out, 4-month and 7-month follow-up in order to assess the representativeness of outcomes at each of these time points. At program completion/drop-out, response bias analyses were conducted to see if significant differences exist between the 1,439 enrollments that responded to the program

[13] 7-month quit rates are typically used; however, the number of completed 7-month follow-up surveys was too small
[14] Additional information about CCI's systems change activities is provided in previous quarterly memos and site visit (2010 and 2011) reports.
[15] Grantees are required to have a minimum of 30 4-month follow-up survey responses to be eligible to have a 4-month tobacco abstinence rate calculated. This "quit rate" is the basis for the cost-per-quit calculation.

completion /drop-out survey and the 385 enrollments with enrollment dates between September 1, 2010 and June 31, 2011 that did not respond to the survey. At 4-month follow-up, response bias analyses were conducted to see if significant differences exist between the 187 survey respondents and the 1,687 enrollments with enrollment dates between September 1, 2010 and June 31, 2011, who did not respond to the survey. Finally, at 7-month follow-up, response bias analyses were conducted to see if significant differences exist between the 105 survey respondents and the 1,718 enrollments with enrollment dates between September 1, 2010 and June 30, 2011, who did not respond to the survey. A synopsis of response bias results at program completion / drop-out, 4-month and 7-month follow-up are provided below. More detailed result tables are provided in the appendix of this report.

Response Bias at Program Completion or Drop-out

Significant differences were found on twelve variables tested for response bias. While age, gender, and referral source were significantly different for respondents versus non-respondents, these three characteristics were not significantly related to quit outcomes and, therefore, are not of great concern. The following variables were significantly related to response and quit outcomes (30-day point prevalence abstinence[16]):

- Race—Whites had higher outcomes than other races (x^2 =71.35, df=4, p<.01)
- Level of Education—those with a high school degree or GED had higher quit outcomes than those with other education levels (x^2 =10.18, df=3, p=.017)
- Hispanic Ethnicity—those who were Hispanic had higher quit outcomes than non-Hispanic respondents (x^2 =37.03, df=1, p<.01)
- Primary Language—those that reported Spanish as their primary language had higher quit outcomes than those that indicated English or some other language as their primary language (x^2 =24.97, df=2, p<.01)
- Past or present mental health treatment—those that had not receive or were not receiving present treatment for a mental health condition had higher quit outcomes than those who reported past or present mental health treatment (x^2 =92.08, df=1, p<.01)
- Past or present physical health treatment—those that had not receive or were not receiving present treatment for a physical health condition had higher quit outcomes than those who reported past or present treatment for a physical health condition (x^2 =37.48, df=1, p<.01)
- Previous quit attempts at enrollment—those who had not attempted to quit at least once previous to enrollment had higher quit outcomes than those who did attempt at least one quite prior to enrollment (x^2 =16.78, df=1, p<.01)

[16] No cigarette or other tobacco use within 30 days of survey completion

- Cigarettes per day at enrollment—those respondents who reported light to moderate cigarette usage had higher quit outcomes than those who reported heavy cigarette usage at enrollment (x^2 =16.72, df=2, p<.01)
- Smoking status at enrollment—those reporting cigarette usage some days or not at all had higher outcomes than those who reported smoking every day at enrollment (x^2 =10.50, df=2, p=.005)

The direction of bias for White race, level of education, Hispanic ethnicity, primary language, previous quit attempts, and smoking status at enrollment, are biases more typically observed for cessation programs, where more vulnerable populations are less likely to respond. However, these biases are still of concern and should be taken into consideration when interpreting results at program completion and drop out. In contrast, findings for Black/African-American race, past or present treatment for a mental and physical health condition, and cigarettes per day at enrollment did not fit a clear pattern. While these factors may not be of great concern, caution should still be taken in interpreting results at program completion and drop out.

In terms of outcomes, race, past or present treatment for a mental or physical health condition, cigarettes per day at enrollment and smoking status at enrollment followed patterns typically observed in cessation studies, so are not of great concern at program completion and drop-out. However, there is no clear pattern observed for education level, Hispanic ethnicity and primary language. These may be the result of specific program effects, chance bias, legitimate bias or factors related to culture. Since these patterns are unclear, caution should be taken in interpreting results at program completion and drop out.

Response Bias at 4-month Follow-Up

Significant differences were found on seven variables tested for response bias. While age, gender, race, Hispanic ethnicity, past or present treatment for a physical health condition, and previous quit attempts (at enrollment) were significantly different for respondents versus non-respondents, these three characteristics were not significantly related to quit outcomes and, therefore, are not of great concern. The only characteristic that was significantly related to 30-day point prevalence abstinence at 4-month follow-up was past or present treatment for a mental health condition (x^2=3.56, df=1, p=.05). Specifically, those who sought current or past treatment for a mental health condition had higher outcomes than those who did not report having past or present treatment for a mental health condition. This may be due to CommuniCare (CCI), which serves the severally mentally ill and substance use dependent populations, as they have a much more intense amount of interaction with enrollees, have more established relationships with enrollees (through receipt of other types of counseling at CCI sub-grantee agencies), and likely have updated contact information because of client's existing (non-cessation-related) mental health treatment appointments at these agencies. For these reasons, we are not concern about the pattern of bias observed at 4-month follow-up.

Response Bias at 7-month Follow-Up

Significant differences were found on two variables tested for response bias. While age was significantly different for respondents versus non-respondents, age was not significantly related to quit outcomes and, therefore, is not of great concern. The only characteristic that was significantly related to 30-day point prevalence abstinence at 7-month follow-up was past or present treatment for a physical health condition (x^2=4.01, df=1, p=.045). Specifically, those who did not seek current or past treatment for a physical health condition had higher outcomes than those who did report having past or present treatment for a physical health condition. This is not a common observation; therefore, caution should be taken in interpreting 7-month follow-up results.

Limitations

Each data source used in this report has limitations, the most substantial of which pertains to grantee-collected, programmatic data. Due to the amount of missing data, changes in data collection over time, and variations in grantee interpretations of data collection elements and time points, data analyzed from grantee DPH Access databases is incomplete, and unreliable, to varying degrees. In terms of cost analyses, cost data was based on pre-defined, quarterly grant contract allotments and were not based on actual monetary expenditures during the analysis period, as CT DPH does not figure actual payments and costs until the end of the grant period (in this case after December 2011). Additionally, CT DPH was not able to supply an amount or proportion of DPH costs associated with administering this grant initiative. PDA, therefore, reviewed the literature to establish an estimated amount of DPH costs and while some estimates were found, none were specific to grant administration at a health department. In terms of reach data, calculations are limited in the sense that they are time specific and cover a time period that matches the 2010 BRFSS data, but may not have been an optimal time frame for measuring program enrollment (e.g. program start-up). Additionally, since 2010 BRFSS tobacco use prevalence is only available for current cigarette users, as opposed to all tobacco users, reach estimates are slightly lower and program-to-BRFFS demographic comparisons do not include all enrollees in certain analyses. Limitations are discussed further, as appropriate, within each results section below.

Results

The following is summary of grantee programming, program participants, program utilization, participant outcomes and other outcomes of interest for the time period of September 2009 through June 30, 2011[17]. Each section below provides evidence and answers to key evaluation questions as well as recommendations for future tobacco cessation funding initiatives. The report culminates in an overview of key community and SMI/SUD grant initiative successes and challenges and provides a summary of key recommendations for future tobacco cessation grant initiatives. Accompanying the report are aggregate and agency-level dashboard reports and narratives as well as key appendices that provide additional information.

What are the characteristics of cessation services provided by the funded programs?

Curricula

All grantees are using a tobacco cessation curriculum that is based on best or promising practices in the field of tobacco cessation. More specifically, the six community grantees use the American Lung Association's *Freedom From Smoking* (FFS) curriculum and the CommuniCare agencies use a curriculum specifically created for the SMI / SUD population entitled *Learning About Healthy Living* (LAHL). In addition, one or two grantees may have used components of the *Not-On-Tobacco* (NOT) best-practice curriculum with the young adult (18-24 years of age) population. Most grantees do not have a formal relapse prevention curriculum.

Most grantees report using the FFS curriculum to guide group and individual sessions, but grantees differ on the extent to which they strictly adhere to curriculum content. Several grantees reported adding content to fill in areas where they see gaps in curriculum and sessions are not necessarily disseminated in the order in which they appear in the curriculum books. Since the FFS is designed for group settings, when grantees use the curriculum for individual counseling they often consolidate or rearrange curriculum content and so the number of sessions is often less than eight (e.g. 5-6 session). Most grantees plan for each group session to take around 60 minutes, whereas the length of individual sessions may range from 20-60 minutes.

Grantees serving the SMI / SUD population use the Learning About Healthy Living (LAHL) curriculum, a promising practice curriculum developed by Dr. Douglas Ziedonis, M.D., and colleagues, which is split into two distinct sections. The first section is for tobacco users that are not yet ready to quit (pre-contemplators) and has been condensed from a 20-session to a 15-

[17] As described earlier under "Methodology", some analyses will include either a truncated or expanded time frame, which will be identified in each report sub-section.

session curriculum. The second section of the LAHL curriculum is geared toward those that are ready to quit and is 8 sessions long.

Overall, it appears that grantees were using their chosen best or promising practice curricula as intended, or at least attempting to cover all content; however, since monitoring of fidelity of implementation was not a requirement of grantees and was not an evaluation component, this observation cannot be confirmed.

Cessation Counseling

Most agencies offer group and individual cessation counseling sessions, although some agencies initially only offer group sessions but provide individual sessions if group attendance is low (e.g. less than 4 attendees), a client misses a session, or the client wants one-on-one sessions. Clients are typically allowed to participate in either form of counseling or both. The type of program is often chosen during the initial enrollment session with the tobacco cessation counselor. This session, in which the enrollment form is completed, is often considered a client's first official counseling session[18]. Counseling sessions are typically held on-site at each agency or at a satellite office of the agency. Some programs that have geographically larger service areas also provide services at other sites or community venues (i.e. schools, conference rooms of local businesses, etc.) to make the meetings more accessible to clients.

Tobacco Cessation Pharmacotherapy

All grantees offer one or more forms of tobacco cessation pharmacotherapy for free, except in situations where a client's health insurance covers the cost of the requested medication. Some agencies purchase prescription medications in small batches and dispense them on-site, while others provide NRT on-site and require clients to fill non-NRT prescriptions at local pharmacies. Some agencies have partnered with a local pharmacy to provide these medications. All agencies reported having a system for tracking purchase and disbursement of cessation pharmacotherapy and any medication stored on-site is stored securely. Additionally, as of March 2011, grantees have also been tracking medications dispensed within their DPH Access databases.

Most grantees require that clients that are interested in using one or more cessation medications obtain approval (and, in some cases, a prescription) from their medical provider to ensure that they do not have any underlying medical condition(s) or are taking any medication(s) that might negatively interact with the chosen cessation medication (a practice supported by DHHS best practice guidelines for tobacco cessation). Medications are often dispensed in 1-2 week batches to protect each agency's supply of medication from being misused and to monitor each client's use of cessation medications (e.g. to monitor side effects or make adjustments to medications). The total amount of cessation medication available to

[18] In order for the initial enrollment session to be documented as a session, it needed to meet the following three criteria: 1) the session was with a trained tobacco cessation counselor; 2) the interaction lasted 20 or more minutes; and 3) the information discussed during the session was meant to move the cessation curriculum forward.

each client differs by medication type and by agency; however, most agencies supply each client with at least the amount of medication suggested by best practice guidelines. Several grantee agencies have also been able to help insured participants receive medications through their insurance plans. A few grantees have been able to leverage additional supplies of free or low-cost cessation medications through other avenues as well.

Relapse Prevention & Quitline Counseling

Relapse prevention counseling is provided within each grantee agency, but most do not use a set curriculum to provide this type of support. Some programs also allow clients to re-enroll in the cessation program if they need additional help quitting tobacco. Many grantees also report using follow-up data collection as an opportunity to check up on former clients and to provide support or referrals as needed. Cessation program clients are also typically provided with information about the Connecticut Quitline. While some agencies use a more formal process of completing a fax referral form and faxing it to the Quitline, others simply provide clients with the Quitline phone number or brochure. Most programs see the Quitline as a resource for clients to use as an additional, form of quitting or relapse-prevention support. Program completion and drop out data suggest that most participants[19] are being provided with information about the Quitline.

Summary

Overall, the community tobacco cessation programs are utilizing a best practice cessation curriculum (ALA FFS) to guide their individual and group session counseling programs and the SMI/SUD programs are utilizing a promising practice curriculum (LAHL) that is tailored to the needs of this population. Participants can often choose to take part in group or individual sessions and can take part in both under a single enrollment. All programs dispense one or more approved tobacco cessation medications to participants free of cost and some help participants obtain medications through health insurance plans where applicable. All grantees appear to monitor pharmacotherapy provision closely to ensure that clients are not having any adverse reactions as well as to protect their limited supply of medications. Finally, program participants are being provided with the opportunity to attend relapse prevention counseling sessions and are provided with information about other cessation supports they can use, such as the Connecticut Quitline. In general, programs appear to have been operating as planned and delineated in grantee contracts and in accordance with best or promising practices in the field of tobacco cessation.

[19] 85% of respondents to the program completion and drop out survey stated that they had been given information about the CT Quitline

To what extent are programs engaging in marketing and outreach activities?

Marketing & Outreach

While most agencies do not have well-defined marketing plans, grantees have employed numerous strategies to recruit tobacco users into cessation programs. For example, grantee have utilized such marketing and promotional mechanisms as: word of mouth advertising to community members, communicating with existing agency clients and community partner agencies, sending out email "blasts", training health care or mental health providers as well as other staff on brief interventions (e.g. "2As + R"--"ask", "advise", "refer"), posting program flyers (on and off-site), advertising at health fairs, schools and other community events; posting program information on social media sites; conducting one-on-one community outreach; distributing brochures, cards, and program branded items; sending direct mail advertisements; and airing radio advertisements. There are some agencies, however, that did not need much additional marketing or promotion of their program, as their programs were more well-established and / or they had an existing client base with a high rate of tobacco use to tap.

As illustrated in the attached aggregate dashboard report, print media appears to be the most prevalent form of marketing and promotional activity (61%), overall; however, depending on grantee agency, print made up 41-93% of all recorded marketing activities. Five of the seven grantees also conducted presentations for staff and/or clients, three grantees distributed branded items, three distributed "other goods", and five conducted "other" marketing activities. The marketing activities documented by grantees within their DPH databases likely is an underestimate of the amount of marketing or promotions that actually occurred, as many grantees stated that they had recorded marketing activities in another non-DPH database or they did not recognize some of their outreach activities as being "marketing" activities and so did not record them as such. One agency did not have any marketing data recorded in their DPH database; however, we know from conversations with them that they have conducted marketing activities. While all grantees were asked to back-enter all of their marketing activities into their DPH databases, many grantees did not take the time to do this, as they had documented activities elsewhere or did not see back-entering data as a good use of their limited resources.

Overall, it is hard to accurately gauge how much marketing and outreach occurred due to differing documentation of these activities by grantees. Many grantees benefitted from internal referrals from other practitioners in their agency (discussed in more detail below), so promotion of their programs was done internally and likely not seen as marketing. Marketing may be more important for programs that need to rely on referrals from outside of their agency's typical client base. These agencies may benefit from some guidance around how to market and promote services within the specific populations they are targeting (e.g. LGBT). Additionally, grantees should be allowed to document activities in their own non-DPH provided databases, provided that they use standard definitions for the types of activities, as this may result in a more complete and accurate account of marketing activities.

What referral mechanisms appear to be the most successful?

Referral Sources

Clients have been referred to grantee cessation programs through a variety of mechanisms; however, an overwhelming proportion of referrals, overall, have come through healthcare (46%; N=645) or mental health providers (24%, N=331). The next largest referral source is "other referral source" (16%, N=218). This is typically the cessation counselor, other grantee agency staff, the client is re-enrolling and indicates that they are the referral source, or they heard about the program via word-of-mouth in the community. The remaining referral sources are: family/friends (7%), brochure/flyer (4%), or an employer (1%). The proportion of referrals from each of these sources varies by agency, for example, in four agencies health care providers were the top referral source, whereas for the other three agencies, it was "other" or counselor/therapist. These agency-level differences are also described in the attached individual agency reports.

The large proportion of referrals from healthcare providers is due to three of the community grantee programs residing within a hospital or health clinic. Additionally, the large proportion of referrals from mental health counselors/providers has to do with the CCI (SMI/SUD) programs being housed within behavior health clinics. Additionally, all of these agencies have provided some form of education to providers and staff within their agencies around brief intervention for tobacco cessation and/or have informed them about cessation services available on-site (though this funding initiative), and, have potentially gained more buy-in from other staff for these efforts. In general, agencies that have their target population on-site appear to be at an advantage in recruiting clients for cessation programming. This does not appear to be the case; however, for a few agencies that have either not obtained buy-in from key staff for referring clients to the tobacco cessation program or the program's target population resides outside of the agency's typical client base. For these agencies, conducting outreach in the community and within partnering organizations, print media and word-of-mouth appear to have been helpful in recruiting clients, but likely took more time and resources than agencies that could recruit from within their client base.

Overall, health care providers, mental health providers and the tobacco cessation counselors themselves (or another agency staff person) appear to be the most frequently cited referral mechanism for many agencies; however, referral sources can differ somewhat by agency depending on whether the target population resides within versus outside of the agency. Recruiting participants from within an agency's existing client base (if applicable) appears to be the most successful strategy, therefore, obtaining buy-in for treating tobacco dependence as well as providing training on brief intervention (minimally: ask, advise, refer) for providers and other key staff within agencies that already serve a large tobacco-using population should be pursued in future community grant initiatives and grant resources should be allotted for staff training purposes. For grantee agencies that either do not directly provide services on-site or need to go to the target population, larger marketing and outreach budgets may be needed.

What are the characteristics of clients served by the programs?

Target Populations

All grantee agencies target adults (18+ years of age) for their cessation programming; however, some agencies have a very specific sub-set of the adult population that they serve—for example: 18-24 year old males; GLBT; HIV-positive; those with a diagnosed mental health disorder. For all agencies that serve a restricted sub-set of tobacco users, most refer those that are ineligible for their services to the Connecticut Quitline.

Demographic Characteristics

Between September 2009 and June 2011, grantees served a total of 1,399 unique individuals. Demographic characteristics were collected from all program participants each time they enrolled in a program. These included: age, gender, race, ethnicity, sexual orientation, level of education, annual income, primary language spoken and pregnancy status. Demographic characteristics of the 1,399 unique program participants are illustrated in the attached aggregate and agency-level dashboard reports.

In aggregate, as is depicted in the attached aggregate dashboard report (Appendix A), the programs served a diverse group of tobacco users with indicators of lower SES. A larger proportion of females were served than males (57% vs. 43%, respectively), over half were age 45 and older, 49% were non-White, 26% were of Hispanic/Latino ethnicity, 13% reported Spanish as their primary language, 71% had a high school education or less, 8% were GLBT, 52% had an annual income of less than $15,000, 75% had some form of government-sponsored insurance and 10% were uninsured, and 0.8% were pregnant at the time of enrollment.

Grantee program participant demographics (specifically cigarette smokers) were compared to the demographics of all smokers in Connecticut. As was explained briefly under "Methodology", the characteristics of Connecticut smokers were extrapolated using 2010 BRFSS estimates and these proportions were compared to that of grantee participant demographics for calendar year 2010 (CY 2010). The results of these comparisons, provided below in Table 1, show how grantees were successfully reaching underserved populations.

Table 1. Comparison of community & SMI/SUD program participants (cigarette users) to the general population of Connecticut cigarette users on several key demographic variables (CY 2010)

		Cigarette users served by programs		Cigarette users Statewide (BRFSS 2010, weighted)	
Item	**Response**	**N**	**%**	**N**	**%**
Gender	Male	336	40.6	198,669	56.1
	Female	491	59.4	155,191	43.9
	Total	827	100.0	353,861	100.0
$\chi^2 = 80.01$, df=1, p<.0001					
Age in years	18-24	70	8.5	61,583	17.4
	25-34	133	16.1	78,857	22.3
	35-44	174	21.0	63,279	17.9
	45-54	288	34.8	69,572	19.7

		Cigarette users served by programs		Cigarette users Statewide (BRFSS 2010, weighted)	
Item	**Response**	**N**	**%**	**N**	**%**
	55-64+	163	19.7	80,571	22.8
	Total	828	100.0	353,861	100.0
χ^2 =156.3, df=4, p<.0001					
Non-Hisp. Race	White	353	42.9	301,369	86.1
	Black or African-American	140	17.0	15,952	4.6
	Other[a]	329	40.0	32,854	9.4
	Total	822	100.00	350,175	100.00
χ^2 =1270.27, df=2, p<.0001					
Hispanic Ethnicity	Yes	233	28.2	30,483	8.6
	No	592	71.8	322,960	91.4
	Total	825	100.00	353,443	100.00
χ^2 =397.56, df=1, p<.0001					
Education level	<9th grade/some HS	162	19.7	33,495	9.5
	HS grad/GED	437	53.0	131,841	37.3
	Some college	168	20.4	102,231	28.9
	College degree or more	57	6.9	86,207	24.4
	Total	824	100.00	353,861	100.00
χ^2 =268.27, df=3, p<.0001					
Insurance status (age 64 and under)	Uninsured	98	12.0	51,302	15.7
	Insured (govt. or private)[b]	719	88.0	274,659	84.3
	Total	817	100.0	325,961	100.00
χ^2 = 8.34, df=1, p=.004					

[a] For the programs, this includes: Asian (n=3), American-Indian/Alaskan Native (n= 6), and Native Hawaiian or Pacific Islander (n=0), and "other: please specify" (n=320). The BRFSS "other" category includes: Asian (n=8383), Native Hawaiian or Pacific Islander (n=43), American-Indian/Alaskan Native (n=2,381), other race (n=16,375), and multiracial (n=5,672).

[b] Includes any type of insurance (private and government-sponsored). The majority of insured program participants were on some form of government-sponsored insurance (e.g. Medicaid).

Note: The yellow highlighted areas indicate characteristics that appear to have a greater representation in grantee programs than would be expected given 2010 BRFSS estimates.

In aggregate, community and SMI/SUD grantees served a greater proportion of females than would be expected given the demographics of smokers in Connecticut (59% vs. 44%, respectively). Additionally, grantee programs also served a greater proportion of 45-54 year olds (35% vs. 20%), a greater proportion of Black /African-American (17% vs. 5%) cigarette users, a greater proportion of cigarette users that identify as some "other" race (40% vs. 9%), a greater proportion of Hispanic/Latino smokers (28% vs. 9%), and a larger proportion of smokers with less than a high school education (20% vs. 10%) and with a high school degree (53% vs. 37%). Finally, the distribution of insurance status is different (amongst those < 65 years of age) than is seen among all smokers in the state. This is likely due to the fact that the majority of program participants were on some form of government-sponsored insurance (e.g. Medicaid).

While demographic characteristics vary by grantee agency, sometimes dramatically (as can be seen in Appendix B in the agency-level reports); overall, grantees are serving a very diverse population of tobacco users with disproportionately high rates of tobacco use and whom have historically been underserved by tobacco control programs.

Clinical Characteristics

Clinical characteristics were also collected from all program participants each time they enrolled in a program. These included: cigarette use, other tobacco use, amount of tobacco used, last time used tobacco, whether they live with other tobacco users as well as questions about treatment for a multitude of mental and physical health conditions. Clinical characteristics of the 1,399 unique program participants are illustrated in the attached aggregate and agency-level dashboard reports.

In aggregate, most participants (93%) smoked cigarettes (7% were either quit at enrollment or used other tobacco products exclusively), 91% had used tobacco within the last 30 days, and 25% had ever tried to quit using tobacco previous to their enrolling in the program. For those that had tried to quit using tobacco in the past, nicotine patch and "cold turkey" were the most common answers. Additionally, of those that smoked cigarettes, 42% were light smokers (< 10 cigarettes per day), 45% were moderate smokers (10-20 cigarettes per day), and 12% were heavy smokers (21+ cigarettes per day). When asked about past or present treatment for a mental or physical health condition, 47% indicated that they had previously been treated or were currently being treated for one or more physical health condition and 64% reported being treated for one or more mental health conditions. The physical health condition most cited by enrollees was high blood pressure (N=347; 24% of unique enrollees) and the most cited mental health condition was depression (N=672; 48% of unique enrollees). The large proportion of those with physical or mental health conditions is not completely unexpected given that most grantee agencies provide physical or mental health services to these clients already. A breakdown of responses to specific physical and mental health conditions are provided in the aggregate dashboard report appendix.

Overall, grantees appear to be serving important target populations and, in general, have been serving tobacco users (mostly cigarette users) from underserved communities that are disproportionately affected by tobacco use and that are typically not reached by mainstream tobacco control efforts. This should be seen as a key success of the community and SMI/SUD grant initiative.

To what extent are programs serving their targeted populations?

Target Populations

Each agency's target population was defined, more or less clearly, within their grant contracts. In general, grantee agencies were contracted to serve low income/low SES, underserved populations with high rates of tobacco use. Indeed, all of the contracted agencies typically serve these populations. Some agencies were contracted to target specific groups within their agencies and communities. For example, some had geographic targets (e.g. New Haven, Hartford, New London), some had targets such as HIV-positive, LGBT, migrant farm workers, or 18-24 year old males and some had a combination of demographic and geographic targets. While grantee data collection included capturing these types of target population characteristics, not all client characteristics were captured (e.g. HIV status) and not all characteristics were available for analysis by PDA[20]. Table 2 below provides a snap-shot of some key populations that were served by each grantee agency.

Table 2. Key populations served by grantee agency and overall (proportions of each grantee agencies unique enrollees)

Agency	% Adults 18+[a]	% Adults 18-24	% LGBT	% Hisp. ethnicity	% Spanish primary language	% Non-White	% Tx for MH/SU[b] condition	% annual income <$15K	% None + govt. insured
APNH	100%	0%	32%	6%	3%	69%	84%	61%	78%
FHCHC	99%	11%	1%	56%	30%	91%	6%	33%[c]	89%
GFHC	91%	13%[d]	7%	29%	18%	28%	81%	51%	87%
LLHD	100%	4%	5%	4%	1%	16%	65%	22%	56%
HGLHC	100%	3%	26%	32%	14%	55%	83%	71%	84%
St. Raph	100%	2%	9%	10%	3%	52%	76%	70%	82%
CCI	99.8%	6%	7%	8%	2%	13%	99%	64%	91%
Overall	98%	9%	8%	26%	13%	49%	64%	52%	85%

[a] There were a total of 18 program enrollees that were under the age of 18.
[b] Past or present treatment for a mental health or substance use condition
[c] This is likely an underestimate, as FHCHC had a large proportion (34%) of missing data on this item.
[d] More specifically, GFHC was contracted to serve 18-24 year-old *males*.
NOTE: Blue highlight = target population(s), as delineated in executed grant contracts

The table above illustrates that grantees primarily served adults, as they were contracted. It also illustrates that all grantee programs served participants that were low income and that either had no insurance or were on some form of government-sponsored insurance. This indicates that grantees, in aggregate, were serving a large proportion of low-SES tobacco users, which is a key target population of the initiative as a whole.

Alternatively, grantee programs reached many different sub-populations of tobacco users to differing degrees. For example, APNH and HGLHC both had LGBT tobacco users as part of their target population and both had GLBT enrollees that represented around 30% of their unique

[20] CT DPH provided PDA with de-identified grantee data, stripped of identifiers such as names, birthdates, geographic residence, and other information that might make it possible to identify a particular individual.

clients served—a much larger proportion than other grantees. Additionally, GFHC, which had a target population of 18-24 year old males, served the largest proportion of tobacco users in this age range. However, it was a great challenge for GFHC to serve this population, as this group of tobacco users was a new target population for them. Additionally, while GFHC was expected to serve a larger proportion of Hispanic/Latino enrollees, FHCHC and HGLHC both also served a large proportion of program participants that identified as being Hispanic/Latino (56% and 32%, respectively). Relatedly, these three grantees served the largest proportions of Spanish-speaking participants. This may highlight the need for additional Spanish-speaking cessation counselors in these communities. In addition, while PDA does not have documentation of the HIV status of program participants (due to privacy concerns and protections), we know from conversations with grantees that, minimally, APNH, HGLHC, and St. Raphael served HIV-positive individuals. Finally, while program participants were likely largely from each grantee's typical service communities, we do not have geographic residence data for participants, so we are unable to confirm whether grantees served participants from the geographic communities specified in their contracts.

Overall, judging by available data, grantees appear to have served at least a modest portion of their grant-targeted populations , inclusive of a large number of tobacco users that typically are not reached by more mainstream tobacco control efforts. Additionally, each grantee served tobacco users with unique demographic profiles (detailed further in the agency-level narrative and dashboard reports in Appendix B) the details of which could help direct the provision of cessation services in these communities. In the future, grantees should continue to be chosen to reach priority tobacco using populations by the agency's track record of serving those populations and may need additional resources (e.g. marketing) to serve tobacco users that are outside of their typical service community.

To what extent are programs serving the number of clients they were contracted to serve?

During the two-year grant period that started in September 2009, in aggregate, six of the seven grantees[21] were contracted to serve almost 1,790 tobacco users. To date, the six grantees served 1,244 unique individuals[22] during this time period, therefore reaching about 69% of this goal. However, if you count the number of re-enrollments that occurred after a 3-month period

[21] GFHC did not have a contracted goal of number of people served, but a contracted goal of number of group programs held. Therefore, GFHCs actual numbers served are not combined with those of other grantees in Table 3 below.

[22] A total of 1,399 unique enrollees were served between September 2009 and June 2011; however, some grantees had enrollment data that went into August 2011 in their last data export to CT DPH—this is why the total here is 1,430, not 1,399 as is in most of the analyses to follow.

of non-contact between a participant and a cessation program[23], and add in these "legal" enrollments, then grantees, in aggregate, met 88% of this goal. These two different scenarios are illustrated in Table 3 below.

Table 3. Proportion of numbers served goal met for community grantees (Sept. '09-most recent data[a])

Agency	Contracted goal for #s served	Total # of unique people	% goal met (unique people)	Total # of "legal" enrollments[c]	% goal met (legal enrollments)
APNH	75 (35 individual; 40 group)	83	111%	84	112%
FHCHC	270 (200 individual; 70 group)	399	148%	440	163%
LLHD	75 (group only)	74	99%	81	108%
HGLHC	296 (200 individual; 96 group)	137	46%	149	50%
St. Raphael	200 (60 individual; 140 group)	148	74%	167	84%
CCI	874[d] (group and individual)	403	46%	651	74%
Total	1,790	1,244	69%	1,572	88%
GFHC	n/a[b] (10 group programs)	186	n/a	191	n/a

[a] Enrollments were counted through the end of each agency's data submission to provide the most recent enrollment counts regardless of report range, as this will be the last report PDA will produce regarding the community programs.
[b] GFHC did not have a contract goal related to number of people served, but had a goal for number of groups held.
[c] Legal enrollments = unique people + re-enrollments 3+ months after last contact date of previous enrollment).
[d] The 874 total goal for CCI was derived by adding the goal for year 1 (500) to 1/3 of the year 2 goal (374), since CCI started programming later than the community grantees and, as of Sept. 2011, will only have been operating programs for a year and a third. The contracted number to be served was not split between individual and group enrollees or group type (low-motivated vs. high-motivated).

At the agency level, all but one agency had a goal for the number of clients served; one agency (GFHC) had a goal for the number of group sessions held. For five of the seven grantees, this number was additionally split between clients served through individual (1-on-1) counseling sessions and group counseling sessions; however, in practice, clients often switched between receiving individual and group counseling sessions within an enrollment and the type of session

[23] During the DPH grantee kick-off meeting conducted in on 11/05/09 by CT DPH (PDA joined via conference call) stated that if a client came back to re-enroll in a program three or more months after their last contact with a program (from a previous enrollment), they could be counted as another person served toward the grant goal of numbers served. This is what we have termed, for the purposes of this report, as additional "legal" enrollments.

received was not always indicated by grantees (in the Attendance Tracking Form). This makes it difficult to decipher whether each agency met their individual versus group goals.

When considering only unique individuals served to date, two grantee agencies (APNH, FHCHC) surpassed their goals, one almost met their goal (LLHD), one met about three-quarters of their goal (St. Raphael), and two met less than half of their goal (HGLHC, CCI). However, considering all "legal" enrollments, LLHD surpasses its goal, St. Raphael increases to reaching 84% of their goal, HGLHC just reaches half of their goal, and CCI reaches 74% of its goal. Since there is still one more quarter of data left in the community grant cycle, some of the agencies that have not quite made their goal for numbers served could make up some ground and end up closer to their goal. In terms of the one grantee agency, GFHC, which only had a goal for number of group sessions held, data collected by the grantee is not complete enough to know if their goal was met; however, GFHC has indicated that they ended up conducting many individual sessions because of client preference. Clients often started in a group setting and decided to change over to receiving individual counseling instead. The amount of unique people served by GFHC is comparable to or greater than four of the six other grantee agencies.

Overall, most grantees reached almost three-quarters of the aggregate numbers served goal. The extent to which each agency met its number served goal varied, with some agencies meeting or surpassing their goal, others getting close and a couple reaching about half of their goal. Some of these numbers may shift slightly with the last quarter of data for the community agencies yet to come and the SMI/SUD agencies with their later contract start and end dates. It is not entirely clear why some agencies met their goals and others did not. It could have to do with characteristics of particular target populations (e.g. more resistance to treating tobacco dependence, social norm differences), marketing and outreach (different types and intensities needed for different populations), or some other unknown factor. While it is difficult to provide a recommendation for a reasonable target for numbers served for future grants; given the numbers of clients served by each community grantee[24], it may be reasonable to assume that similar organizations may be able to serve 100-200 unique individuals in a two-year period; perhaps fewer if they need to conduct more outreach to bring in clients from populations that are harder to reach (e.g. LGBT). This could potentially be increased if grantees were not burdened by so many grant-related data collection requirements.

To what extent are clients utilizing cessation services provided by the funded programs?

In aggregate, when observing individuals (N=1,399) most recent enrollment between September 2009 and June 2011, 27% (n=378) attended five or more counseling sessions (individual and/or

[24] It is too early to estimate a reliable number of people served for SMI/SUD agencies.

group), 60% (n=839) attended 1-4 sessions and 13% (n=182) did not attend any sessions. The 13% that did not attend any sessions may have had a brief, initial contact either in person or over the telephone with a counselor or other program staff where an enrollment form was completed, but the encounter did not meet the required minimum specifications[25] for it to be recorded as a counseling session. If the net is widened to include the number of sessions attended, on average, across all of enrollments of the 1,399 unique individuals (since many had enrolled more than once with varying lengths of time in-between enrollments), the average is 4.5 (stdev=6.1; range: 0-58) sessions. As mentioned earlier, individual counseling programs were to last for a minimum of 5 sessions and group programs were to last for a minimum of 8 sessions[26]. Given these specifications, it appears that, overall, most participants received slightly fewer sessions on average than originally intended—22% attended between 5-8 sessions total and 10% attend 9 or more sessions total (adding up sessions attended across all enrollments); however, it is difficult to confidently separate individual versus group sessions since enrollees often took part in both as part of a single enrollment and/or documentation of program type was not consistent. There are also variations by grantee as is discussed in more detail in the accompanying agency-level reports.

As an additional point of reference, two Minnesota studies of similar face-to-face programs in Minnesota found similar levels of program utilization. More specifically, the first study found that 35% face-to-face program participants attended 2-3 sessions and 34% attended four or more sessions[27]. In a subsequent study[28], it was found that 87% of program participants attended 1-3 sessions (of 20+ minutes each) and 12% attended 4 or more sessions. In both studies, face-to-face programs had the smallest proportion of clients attending 4 or more sessions, when compared to other types of cessation programs (e.g. quitline, worksite, website). It is possible that participants that attend face-to-face programs have a higher level of readiness to quit and face-to-face programs may be able to convey important information with greater efficacy. Given these additional points of reference, the program utilization experienced by the CT community and SMI/SUD programs is at least as good, if not better than was observed in these studies.

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[25] In April 2010, PDA identified anomalies in how grantees were recording sessions and sent a memo to CT DPH with a recommendation for what should be considered a session and recorded as such in the Attendance Tracking Form. PDA and CT DPH agreed on the following definition of "session": 1) the interaction should be with a trained tobacco cessation counselor; 2) be a minimum of 20 minutes in length; and 3) the session should follow the content of a best practice tobacco cessation curriculum with the aim of moving the curriculum forward. A telephone contact that meets all three criteria should be considered a session and recorded as an "individual" session. This information was subsequently disseminated to all grantees.

[26] While the CCI curriculum consists of a 15-session pre-contemplator program and an 8-session cessation program, CCI was contracted to provide a minimum of 5 sessions for individual counseling and a minimum of 8 sessions for group *cessation* counseling.

[27] Lawrence C. An, Anne Betzner, Anne Wendling, Jessie Saul, Barbara Schillo, Michael Luxenberg, Annette Kavanaugh, and Matt Christensen 2010. The comparative effectiveness of clinics, worksite, phone and web-based tobacco treatment programs. Nicotine & Tobacco Research 12(10): 988-996.

[28] Paula A. Keller, M.P.H.; Anne Betzner, Ph.D.; Lija Greenseid, Ph.D.; Barbara A. Schillo, Ph.D.; Jennifer L. Cash, M.P.H.; Michael G. Luxenberg, Ph.D. *Relative Reach, Utilization, Effectiveness and Costs of ClearWay Minnesota's℠ QUITPLAN® Services*. Poster presented during the 2011 Society for Research on Nicotine and Tobacco annual meeting.

In addition to cessation counseling, about 50 enrollees (4% of all enrollees) took part in relapse prevention counseling sessions. About 80% (n=40) of these enrollees attended 1-4 relapse sessions and the remaining 20% (n=10) attended five or more sessions. There were no specifications for how many relapse sessions were to be included in a relapse prevention program. In general, most enrollees did not take part in relapse prevention sessions.

As specified in grantee contracts, grantees were also to refer all program participants to the Connecticut Quitline for further support. While there is no clear documentation of the extent to which participants were referred to the Quitline, all grantees stated that they referred all or most participants to the Quitline. Some provide information via brochures or other print material and others use a fax referral form to send referrals directly to the Quitline vendor (Alere). Some agencies promote the use of the Quitline to be used in tandem with the community program or as post-intervention support, after finishing the program. While a fax referral form was to be used for all Quitline referrals, they were not used by all grantees. In the future, grantees may need more education as to how the Connecticut Quitline can help provide additional support to clients and how the fax referral system works.

Overall, it appears that program enrollees attended slightly fewer cessation sessions, on average, than the contracted minimums grantees were to provide for group and individual sessions; however, over a third attended a total of five or more sessions across enrollments and studies of similar programs have shown similar or lower levels of face-to-face program utilization. While there is no standard recommendations for the number of sessions (or duration of sessions), a tobacco user's chances of quitting generally increase with more intervention[29]. More brief interactions, however, likely occurred with each enrollee but were not recorded in the Attendance Tracking Form, as the encounter did not meet CT DPH criteria for a session[30]. Since many enrollees switched back and forth between individual sessions and group sessions within a single enrollment and documentation of such occurrences was not always consistent, it is difficult to say how many were individual versus group sessions. This also makes it somewhat difficult to make a recommendation as to the optimal number of sessions a person should attend. The duration of each session was also not documented, so it is difficult to say how much intervention is enough. In the future, it may be prudent to track the number of minutes spent in each counseling session (minimally) as well as to track the duration of other contacts as well.

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[29] 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.
[30] See footnote 25

To what extent are all necessary data being collected?

Grantees were required by CT DPH to collect program data using eight different forms[31], some with multiple components and purposes, and were to enter in data from these forms into an MS Access database designed and supplied by CT DPH. While the consistency and completeness of data collection differs by grantee agency, in general, data from the Referral/Enrollment and Attendance Tracking Forms (session tracking portion) were the most complete. While Program Completion/Drop Out data (in the Attendance Tracking Form) were not always collected consistently, data is more complete on these forms than on some of the key outcome forms—patient satisfaction and follow-up (originally: 3, 6, 9 and 12 months post-last contact date; changed in early 2011 to 4 and 7 months post-enrollment date to be more in line with industry standards for outcome data collection). The use of each of these three forms is described below.

Program Completions & Drop-Out

The program completion and drop-out section of the Attendance Tracking Form was to be completed when someone finished attending all of the sessions in a program and/or when an enrollee started a program but had not finished the program and had no contact with the program for three months (considered to be "drop-outs"). Grantees were to indicate on the form whether the enrollee was a program completer or a drop-out. One purpose of making this distinction was to be able to show differing tobacco use outcomes; however, since we know anecdotally from grantees that they defined program completion and drop out in different ways, and, additionally, we know from the data that this item often does not have a response (e.g. missing a completion status), it is difficult to show any differences reliably between these two groups. While completion/drop-out data were more consistently collected than follow-up data, there remains a substantial amount of missing data on key tobacco use items that are required to calculate tobacco abstinence and reduction outcomes (from enrollment to completion/drop out). Grantees need more training and resources to adequately collect data at these time points. Outcome data, overall, was lacking, which is also described below.

Program Satisfaction

Program satisfaction data, which was to be collected at the same time as the Completion/Drop-Out form, was collected on only 20% of enrollees (corresponding to each individual's most recent enrollment). The proportion completing this form ranged from a low of 13% (St. Raphael; CCI) to a high of 54% (LLHD), depending on the grantee agency. In the future, DPH may want to add a couple of key satisfaction questions to the follow-up form, instead of having a separate patient satisfaction form, to increase the likelihood that this data will be collected.

[31] Referral/Enrollment, Attendance Tracking/NRT Log/Program Completion or Drop-Out/Relapse Prevention, Patient Satisfaction, Marketing Activity, Pregnancy Outcome, DHHS Post-Test, Provider Input, and Follow-Up forms.

Follow-Up

In terms of follow-up data collection, in aggregate, only 20% (n=187) of enrollees eligible a 4-month follow-up completed a form and only 14% (n=105) of enrollees eligible for a 7-month follow-up completed a form. By agency, the proportion of completed 4-month follow-up surveys range from 2% (LLHD) to 31% (GFHC) and for 7-month follow-up, the proportion completed ranged from 0% (LLHD) to 17% (GFHC; St. Raphael). This lack of follow-up data collection by grantees is likely due to a multitude of factors. Grantees were required to collect their own follow-up data (typically the counselor collected it themselves), which requires an ample amount of time (7-8 contact attempts for each person, at each follow-up time point) and skill to accurately administer. While PDA provided some training to grantees on follow-up data collection during site visits and a webinar and were given follow-up data collection tip sheets, grant staff were likely not the right people to collect this data. Additionally, up until February/March 2011, grantees were required to collect follow-up data at four time points instead of two, which was highly burdensome to most programs. In the future, follow-up data should be collected at 7 months post-enrollment date to be in line with industry standards[32] and data should be collected by an external data collection firm that has experience with this type of data collection. While this may seem self-serving, as PDA is a data collection firm, it would likely be more cost-effective to have trained interviewers conduct follow-up data collection. This would likely yield a greater response rate and more accurate estimates of key participant outcomes. Additionally, it is recommended that several questions on the 7-month follow-up form be changed to match the current version of the NAQC MDS[33] follow-up questionnaire, to, again, be in line with emerging measurement standards in tobacco cessation.

Marketing

As mentioned earlier, it appears that several grantees did not completely document all of their marketing and outreach activities, related to this initiative, within their DPH databases. We know from talking with grantees that several of them documented these activities elsewhere and reported activities in their quarterly narrative reports to DPH, some did not consider their activities to be marketing activities, and some likely did not feel they had the time to enter in all of their activities. While CT DPH requested recently that grantees go back and enter in all of their marketing activities since the beginning of the grant into their DPH Access databases, this was likely done by some and not by others. This is evidenced by the fact that some agencies only had a handful (or zero) marketing activities recorded and some had over one hundred recorded (in their DPH Access database). While marketing, outreach and promotional activities are important to programs (some more than others); this documentation strategy may need to be rethought. One way to reduce data collection burden may be to allow grantees to document

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[32] NAQC. (2009). Measuring Quit Rates. Quality Improvement Initiative (L. An, MD, A. Betzner, PhD, M.L. Luxenberg, PhD, J. Rainey, BA, T. Capesius, MPH, & E. Subialka, BA). Phoenix, AZ.

[33] Provided the following citation is used, the MDS may be copied or reproduced without permission: North American Quitline Consortium (NAQC). The Minimal Data Set for Evaluating Quitlines. Phoenix, AZ: NAQC; Dec. 2009.

activities (in a standardized way) using their own databases or systems, as was the case for several of the grantees discussed in this report.

Pregnancy Outcomes

Pregnancy outcomes, documented on the Pregnancy Outcome Form, were only collected on 1 of the 11 women who indicated that they were pregnant at the time of program enrollment. This clearly was not a priority for most grantees, since it was not a focus of this grant initiative and it was likely seen as not as important (or, perhaps, intrusive) as other data collection forms. In the future, DPH may want to find other ways to collect this type of information from other state or federally-sponsored surveys (i.e. PRAMS, PRATS) or through other initiatives that focus on serving women of childbearing age.

DHHS Training Post-Test and Provider Input

Finally, the remaining two forms—DHHS Training Post-Test and Provider Input—were only utilized by a few agencies, with one agency being the primary user. These forms were somewhat similar, in that they attempted to gauge the awareness and knowledge of staff around tobacco cessation interventions (i.e. brief interventions) , around which cessation programs were available to clients, and whether they felt they had what they needed to intervene with tobacco users and get them the help they needed. While these data collection forms made sense for a few of the programs that were based out of health clinics, several grantees were confused as to how the forms should be used and with whom. PDA brought this to the attention of CT DPH grant managers, discussed the purpose of these forms with grantees and directed grantees to their grant manager if they were still unsure who was supposed to fill out the forms. This did not appear to improve data collection with these two forms, as the forms are still almost exclusively used by only one grantee agency. In the future, it is recommended that the Provider Input form be dropped and that the DHHS Post-Training Form only be implemented in clinic or hospital-based settings where brief interventions are more likely to occur and grantees are given a well-defined target audience for the forms.

NRT Distribution

Grantees were also required to collect data on NRT distribution starting in February/March 2011. Data from this section of the Attendance Tracking Form is not reported on here as the data would, in most cases, not be representative of NRT distribution during most of the two-year grant period.

While, overall, grantee agencies collected information, to one extent or other, using the eight required data collection forms, data was only consistently collected with a couple of forms. In many instances, data necessary to assess participant outcomes was either not collected or was incomplete. This likely was the result of a couple of key factors—grantees were burdened with an overwhelming amount of data collection that they were themselves required to collect, and/or counselors, who were typically the data collectors, did not have the appropriate skills to collect data consistently and accurately or did not make data collection a priority. To be in line with established data collection standards, it is recommended that in future initiatives, grantees should only be expected to collect enrollment data, track program utilization (sessions) and NRT

distribution, maintain participant contact information, and, were appropriate (i.e. clinical settings), administer post-training forms to clinicians and providers implementing brief tobacco cessation interventions. Marketing data may also be essential to collect, but grantees should be allowed to document activities (in a standardized way) using their own databases or systems. Finally, it is recommended that follow-up data be collected at 7-months post-enrollment using standardized questions as in the NAQC MDS. It is also recommended that follow-up data collection be conducted by an external data collection agency with experience collecting similar data using NACQ MDS standards.

What is the reach of the initiative overall?

Program reach can be an important measure for a cessation program or initiative to monitor. Reach can help answer questions such as "How well is the program being promoted?" or, "What is the potential impact of the program on quit rates for the target population?" While these are both important questions, the current analysis focuses on the first. Calendar year 2010 (CY 2010) is the focus of the reach analysis, since the rate is based on the 2010 CT BRFSS (which is based on a calendar year).

For the period of January 1, 2010 through December 31, 2010, promotional reach for the community and SMI/SUD tobacco cessation initiative, overall, is estimated to be 0.23%. In other words, in CY 2010, 0.23% (95% CI: 0.21%-0.25%) of current smokers (18 years or older) in Connecticut enrolled in one of the community or SMI/SUD programs funded under this DPH grant initiative. Table 4 below, shows the final figures used in the calculation.

Table 4. Combined promotional reach for the community & SMI/SUD cessation programs (CY 2010)

Numerator	**N**	**%**
Unique tobacco users, 18+ years of age who enrolled in a program in CY 2010[a]	856	100%
Not current cigarette users	-27	3.15%
Total cigarette smokers who enrolled in CY 2010 and were not quit at enrollment	829	96.85%
Denominator		
Total 2010 smokers in Connecticut[b]	363,935	100.00%
Rate of Promotional Reach: 0.23% (CI 0.21%, 0.25%)		

[a] unique participants who enrolled from January 1, 2010 through December 31, 2010
[b] 2010 BRFSS prevalence of 13.2% (currently smoking every day or some days) multiplied by the number of adults living in Connecticut per the 2010 Census (2,757,082)

While there is not a standard promotional reach rate for community programs, to provide some context for this reach figure, a comparative analysis conducted on different types of cessation programs in Minnesota[34] found reach rates for similar community face-to-face programs to be around 0.66% (95%CI: 0.61%, 0.72%); however, this rate was based on a more precise analysis that only included tobacco users within the service areas of each program, not the entire tobacco using population, as with the current community and SMI/SUD analysis[35]. In a more recent study of similar face-to-face programs in Minnesota, promotional reach was calculated using the whole tobacco using population of the State and was found to be around 0.12%[36]. This rate is clearly less than that found in the first study (0.66%) and is also less than the rate calculated for the CT community and SMI/SUD programs (0.23%). To this end, the community and SMI/SUD rate seems reasonable. Additionally, most of the community and SMI/SUD grantees serve small populations and, therefore, a smaller rate of reach is to be expected. It should also be noted that since the study was restricted to the 2010 calendar year, it does not include all program participants to date.

Overall, the community and SMI/SUD programs enrolled a small proportion of the State's cigarette smokers; however, the proportion served is reasonable given the capacity and resources of grantee agencies. In the future, if grantee agencies are expected to bring in and serve a larger volume of program participants, they will need more resources. Additionally, the Connecticut Quitline could become a good source of referrals to community programs for callers that request additional assistance and/or are looking for face-to-face resources in their community to use in conjunction with or instead of quitline services. In order for this to work well, CT DPH would need to provide the CT Quitline with the names of all currently funded programs and provide updates as changes are made.

How satisfied were clients with the services they received?

Most program participants that completed a patient satisfaction form were very or mostly satisfied with the program or service they received, overall. Additionally, most either strongly agreed or agreed that: sessions met at a convenient time and location, information given during sessions was easy to understand, counselors treated them with respect, they received the kind of service they wanted to help them quit, the program met most of their needs to quit, they would recommend the program to a friend in need of cessation assistance, and, if they were to

[34] Lawrence C. An, Anne Betzner, Anne Wendling, Jessie Saul, Barbara Schillo, Michael Luxenberg, Annette Kavanaugh, and Matt Christensen 2010. The comparative effectiveness of clinics, worksite, phone and web-based tobacco treatment programs. Nicotine & Tobacco Research 12(10): 988-996.
[35] Resources to conduct a more nuanced analysis such as this were not available for this community/SMI/SUD report.
[36] Paula A. Keller, M.P.H.; Anne Betzner, Ph.D.; Lija Greenseid, Ph.D.; Barbara A. Schillo, Ph.D.; Jennifer L. Cash, M.P.H.; Michael G. Luxenberg, Ph.D. *Relative Reach, Utilization, Effectiveness and Costs of ClearWay Minnesota's℠ QUITPLAN® Services*. Poster presented during the 2011 Society for Research on Nicotine and Tobacco annual meeting.

seek help again that they would come back to the program. While these are very positive results, they are based on 20% (n=276) of all program participants that were eligible[37] to complete a satisfaction survey, and, therefore, may not be representative of all program participants.

While the proportion of missing data differs by agency (range: 46%-87%), most grantees did not collect satisfaction data from most clients. Due to these small rates of completion, satisfaction results for most agencies are most likely (positively) biased and, therefore, firm conclusions about patient satisfaction cannot be made at this time. It is unclear why grantees did not collect patient satisfaction data; however, one reason could have been grantees perception that they would be overburdening participants by having them complete the form alongside the program completion or drop out form which was to be collected simultaneously. In the future, as discussed above under "Data Collection & Evaluation", a couple of key satisfaction items could be extracted from the current Patient Satisfaction Form or the NAQC MDS and inserted into the 7-month follow-up survey to reduce data collection burden on grantees and to decrease participant response burden.

How satisfied are health care providers within each program?

Grantees were required to collect data from other staff at their agency (e.g. providers, counselors) in an effort to gauge staff satisfaction with the tobacco cessation services and materials available to clients under this (community and SMI/SUD) CT DPH funding initiative. Four of the community agencies (FHCHC, GFHC, HGLHC, and St. Raphael) collected this information. It should be noted that 31 of the 46 respondents (67%) were from one agency (FHCHC), and, therefore, results described below are not necessarily an accurate representation of the sentiment of all professionals involved with all of the community and SMI/SUD tobacco cessation programs funded under this initiative.

Of the 46 professionals that filled out a Provider Input Form between September 2009 and June 2010, over 90% reported being satisfied with the tobacco cessation program at their agency. The majority of the staff surveyed felt that the DHHS/ACOG tobacco cessation intervention training was comprehensive and most stated that the training had prepared them to talk to patients / clients about tobacco use. Additionally, all said that they had received materials or an orientation for the tobacco cessation program at their facility and most said that the process for referring a patient to the tobacco cessation program was easy to follow and that they knew who to contact if a patient is interested in participating in cessation services through the grantee

[37] Patient satisfaction is only reported for an individual's most recent enrollment with either: 1+ counseling sessions recorded, a recorded program completion status (completer or drop out), or a last contact date dated 3+ months after last contact date (i.e. considered to be a drop out).

agency. Finally, most said that tobacco program materials were located in their examination rooms, that they had seen cessation program promotional materials at their facility, and that CT Quitline information was available in their examination rooms (for patients).

As mentioned previously under "Data Collection and Evaluation," despite technical assistance, many community grantees were unclear as to who was to complete the Provider Input Form, so very few utilized it. Additionally, the questions on this form are written with health clinics or hospitals in mind and the language may not be suited for use within other types of organizations; therefore, questions may need to be revised for these other organizations.

Overall, it appears that staff that completed the survey were satisfied with the cessation programing at their agency and felt that they had been given the necessary training and information needed to help clients quit tobacco; however, since data were only collected by a few agencies and it is unknown how many providers were eligible to complete the requisite form within each agency, responses are not representative of all grantee agency staff involved in some way with this initiative. In addition, the questions on the form are intended for clinical organizations and are not necessarily applicable to other types of organizations; therefore, if grantees are required to collect this information in the future, question wording should be changed to be in sync with the realities of non-clinic-based community organizations. Additionally, CT DPH should clearly identify the target audience for the form with each grantee during the contract negotiation process.

What are tobacco abstinence rates for the initiative overall?

The following sections describe aggregate tobacco use outcomes of program participants in all six community programs and SMI/SUD programs at three time points: program completion / drop out (short-term), 4 months post-enrollment (intermediate), and 7 months post enrollment (long-term). Agency-level results can be found depicted in the aggregate dashboard report and individual agency dashboard reports and narratives that accompany this report. The following analyses are based on grantee-collected data.

Program Completion / Drop Out: Short-Term Outcomes

Short-term tobacco use outcomes were to be collected either at program completion (for those that completed a program) or three months[38] after a participant dropped out of a program. For the period of September 2009 through June 2011, community and SMI/SUD grantees collected valid program completion/drop-out data from 671 participants after their most recent

[38] Counted as three months post last date of contact with the program (e.g. last session attended), as defined by CT DPH.

enrollment—this represents 50% of program participants[39] that should have a completed form, therefore, the results presented below are not necessarily representative of all program participants.

Outcomes by Program Completion Status

Program Completers. Of those that had a program completion status of "yes" (n=368) and filled out a completion form, 47% (n=173) reported abstinence from tobacco at program completion[40]. Program completers that were *not* abstinent at the time they completed the form were able to significantly reduce the average number of cigarettes they smoked per day compared to when they enrolled in the program—16.8 cigarettes per day at enrollment versus 7.33 cigarettes per day at program completion ($F=126.46$, $p < .001$). Additionally, the average cigarette reduction observed amongst this group of program completers was significantly larger than the reduction observed for drop-outs that were non-abstinent when they completed the drop-out form ($F=27.58$, $P<.001$). Additionally, program completers that were not abstinent when they were surveyed also saw a significant reduction in the average number of days they smoked cigarettes—6.77 days/week at enrollment versus 6.14 days/week at program completion ($F=35.02$, $p<.001$). Akin to reductions in cigarettes per day, the average reduction in days per week was greater for program completers than for drop-outs that were still using tobacco when surveyed ($F=114.39$, $p <.001$). Overall, program completers appeared to have more positive outcomes than drop outs. This is to be expected given that, in general, a greater amount of treatment results in better tobacco cessation outcomes.

Drop outs. Of those that dropped out of a grantee cessation program and were followed up with the drop-out form (n=545), 11% (n=60) reported being abstinent from tobacco at that time. Those that were still using tobacco when they were contacted were able to significantly reduce the average number of cigarettes smoked per day between enrollment and drop-out—17.88 at enrollment versus 14.55 at drop out ($F=126.46$, $p < .001$). However, unlike non-abstinent program completers, drop outs did not see a significant reduction in the average number of days smoked per week. While a smaller proportion of drop-outs were abstinent when they were surveyed in comparison to program completers (11% vs. 47%), drop outs, on average, experienced a significant reduction in the amount of cigarettes smoked per day. This suggests that drop outs are getting at least some benefit from participating in some counseling.

Missing program completion status. Of the 429 that were missing program completion status (and should have been assigned a status), 52% (n=223) reported abstinence from tobacco. The remaining respondents were either still using tobacco (4%) or were not asked about their tobacco use status (44%). Since these participants were not designated as program completers or drop outs, it is unclear why their rate of tobacco use abstinence appears to be higher than for the program completers and dropouts. There may be a large number of program completers in

[39] Missing data encompasses participants that never completed a survey as well as partially-completed surveys that were missing key tobacco use items that are needed in tobacco use reduction and abstinence calculations.
[40] Abstinence is no cigarette or other tobacco use within the past 30 days at the time of survey completion.

this group that were not marked as such, and that is why a large proportion was found to be abstinent when surveyed. This lack of clarity points to larger data collection issues, which are described earlier and summarized again below in more detail.

One confounding factor to the results presented above is that grantees did not always define "drop out" or "program completer" in the same manner. This information was revealed during site visits and other communications with grantees. While, according to CT DPH definitions, program completers were only to be marked as such if they attended all sessions in a program during a single enrollment (e.g. 5 individual sessions; 8 group sessions), some grantees marked participants as being program completers if they quit using tobacco after attending a couple of sessions. Similarly, someone could have been marked as a "drop out" if they attended 4 out the 5 sessions in a program but had no contact with a program for over three months. Grantees may also be ignoring that check box on the form completely. Differing interpretations of completer and drop out and differing attention to detailed data documentation may help explain why abstinence and reductions in tobacco use are also observed amongst drop outs and those with a missing completion status. If short-term abstinence outcomes are calculated ignoring program completion status, 34% of all participants would be considered abstinent from tobacco at program completion/drop out (versus 47% for completers, 11% for drop outs, and 52% for those missing a completion status). Due to these uncertainties, it is difficult to confidently interpret whether program completion status had any relationship with tobacco use outcomes at program completion/drop out.

In general, participants that receive more intervention have better outcomes than those that receive less intervention. While this appears to be true—that program completers had better outcomes than drop-outs—the substantial amount of uncertainty about the designation of completion status as well as the amount of missing program completion/drop makes interpretation of the results challenging. In the future, it may be more meaningful to compare abstinence between participants with differing amounts of program utilization—number of sessions attended *and* number of minutes in each session—and assess utilization along with 7-month follow-up outcome results. This would be more in line with established data collection practices in tobacco cessation and would likely lead to more meaningful abstinence comparisons.

Referral to Additional Resources

Around 85% of those that filled out a completion/ drop out form indicated that they had been referred to a Quitline. This is important to note, as all grantees were required to refer program participants to the Quitline for additional cessation or relapse prevention support. Additionally, 69% said they had been referred to a relapse prevention program, 57% said they had been referred to additional individual counseling, and 9% reported being referred to another community program. While these results indicate that grantees were trying to ensure that program participants received additional support for quitting, the amount of missing data (50% response rate) tempers these results, as they may not be representative of most program enrollees. In the future, questions regarding the use of additional cessation resources should be asked using more standardized and mutually-exclusive response categories (such as in the NAQC

MDS) at 7-months post-enrollment. This would bring this measurement in line with more established practices.

Self-Reported Medication Use

Of the 73% of respondents that said they tried to quit using tobacco while participating in a cessation program, 60% said they used the nicotine patch, 25% used nicotine gum, 12% used either nicotine spray or lozenge, 20% used Chantix, 2% used Zyban/Wellbutrin, and 5% reported quitting "cold turkey"[41]. In general, these results suggest that grantees are providing program participants with information about or are providing cessation medications to program participants. Additionally, while these questions and corresponding response categories likely provide more accurate information than questions asked at subsequent follow-up time points (e.g. 4 and 7 months), in the future, self-reported medication use should be asked using standardized language (e.g. NAQC MDS) and should be compared to records of actual medication dispensed to each enrollee. While grantees began to document medications dispensed toward the end of the grant period, data is not complete enough to warrant analysis at this time.

Other Quitting or Reduction Behaviors

Respondents were asked whether they had tried quitting tobacco while participating in the program. While 76% reported that they had tried to quit, 52% of data was missing on this item, so responses may not be representative of most program participants. In the future, this question should be asked at enrollment and 7-month follow-up using standardized language in order to more accurately gauge change in quitting behaviors. In addition to quitting, respondents were asked whether they had made changes to where they smoked cigarettes. To this end, 36% stated that they reduced their use or no longer smoked in their homes, at work, in the car or in public and 11% stated that they only smoked outside. While the response rate to this survey was low, these results show that respondents were thinking about how they could help reduce other's exposure to secondhand smoke and this may have helped them to reduce their own use of cigarettes as well. In the future, if second-hand smoke reduction and tobacco use reduction behavior measurement is important, standardized questions that more accurately measure these constructs should be used and collected at enrollment and 7-month follow-up to assess changes.

While, overall, it appears that outcomes at program completion are more positive for program completers, the assertion cannot be confidently made that participants that complete a program have better outcomes than those that drop out of a program. This is largely due to a lack of use of a standard definition of "program completer" and "drop out" across grantee, a lack of consistently designating participants as completers and drop outs on the program

[41] Percentages equal more than 100%, as respondents could indicate more than one quit method used (i.e. multiple response item).

completion / drop out data collection form, and a general lack of data collection at this time point. In general, a lack of standardized data collection and amount of missing data, make it difficult to assess program effectiveness at completion and drop out.

In the future, since: 1) grantees find it challenging to collect data at multiple time points; 2) collection of data at program completion substantially increases grantee data collection burden; and, 3) there is a lack of data collection using standardized (reliable, valid) instrumentation, it is recommended that data collection at this time point be dropped in favor of more standardized data collection methodology at 7 months post program enrollment. Relatedly, as tobacco abstinence is often associated with intensity of program utilization, it is recommended that grantees record session duration (in minutes), in addition to recording the number of sessions each participant attended, so that solid assessments of the relationship between program use and outcomes can be conducted.

Participant Follow-Up: Intermediate & Long-Term Outcomes

As defined during the beginning of the grant period, grantees were to collect follow-up data from all program participants at 3, 6, 9 and 12 months after the date of last contact with a program. In early 2011, CT DPH changed this requirement to reflect some of PDA's data collection recommendations and the realities of grantee's abilities to collect data at so many different time points. To this end, follow-up data collection was reduced from four to two data collection time points (4 and 7 months) post program enrollment (changed from "post last contact date"). A couple of key tobacco use questions were also changed to be more in line with standard question wording. While PDA suggested that the 7-month post-enrollment time point was sufficient to measure participant outcomes (given current industry standards for outcome data collection), CT DPH decided it was also important to collect more intermediate-term outcome data a 4 months post enrollment mainly due to concerns over participant attrition.

In February / March 2011, grantees were provided with an updated version of their DPH database which included the new 4 and 7 month follow-up data collection forms. Due to the change in data collection time points and key tobacco use questions, it was necessary for PDA to conduct some additional processing of the data in order to maximize the amount of follow-up data for this report and to synthesize responses to the old and new tobacco use questions. In general, follow-up surveys that were conducted within a month (+/-) of the calculated 4 and 7 month post enrollment follow up dates were included in the current analysis. Attrition tables that indicate who was included in these follow-up datasets are provided in the aggregate dashboard report appendix. The following 4 and 7 month follow up results presented below reflect the new follow-up time points.

4-Month Follow-Up: Intermediate Outcomes

The key intermediate outcome of interest at the 4-month follow-up time point is self-reported 30-day point prevalence abstinence[42]. In order to be considered abstinent, a respondent had to report that they had been completely abstinent from all forms of tobacco for 30 days or more at the time they completed the 4-month follow-up survey. Clients that were not using tobacco or who were missing tobacco use status at enrollment were excluded from abstinence analyses. In addition to the results presented below, a selection of 4-month follow-up results is also displayed in the accompanying aggregate dashboard report (Appendix A).

In aggregate, 187 enrollees had valid 4-month follow-up survey data[43]. These 187 people represent 20% of all enrollees that should have had a 4-month follow-up and 13% all clients served by the community-based and SMI/SUD tobacco cessation programs. Therefore, while abstinence rates are accurate for those surveyed (i.e. responder rate), they are not representative of all clients served by these programs.

Analysis of 30-day abstinence rates for those that responded to the 4-month follow-up survey reveals a responder quit rate (RR)[44] of 20.9% (95% CI: 15.4%, 27.6%)[45]. The responder abstinence rate is considered to be a liberal estimate of the true quit rate, as it does not represent all program participants—in this case only 20% of eligible participants. On the more conservative side is the intent-to-treat abstinence rate (ITT). This rate considers all program enrollees that should have responded to the 4-month follow-up survey and is calculated by dividing the number of respondents that were 30-day abstinent by all participants that were eligible to take the survey. This rate also assumes that all non-respondents were non-abstinent. In this instance, the 4-month 30-day ITT abstinence rate is 4.1% (95% CI: 2.9%, 5.6%). The "true" 4-month abstinence rate likely lies somewhere between the conservative 4.1% ITT estimate and the more liberal 20.9% RR estimate. The large gap between these two estimates is due to the small proportion of eligible clients that responded to the survey (20%). Higher response rates would yield more accurate estimates of abstinence.

While there is currently not an established base of literature against which to compare these 4-month abstinence rates (as this is a non-standard, intermediate follow-up time point), the quit rate for those quitting unassisted (no counseling, no medications) is somewhere between 4% and 7%[46,47] (approx. 6-12 months post-enrollment). This suggests that the 4-month abstinence

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[42] While self-reported abstinence was not verified by other means, such as lab tests, this method of abstinence measurement is an established standard in the field and has been found to be a reliable and valid measurement of tobacco use abstinence.
[43] 4-month follow-up is reported for follow-up surveys conducted between 90 and 150 days post enrollment date (for an enrollee's most recent enrollment).
[44] # 30-day abstinent / # who responded to the survey
[45] A Primer on Tobacco Abstinence Rates, which provides more detail about quit rate calculations and 95% confidence intervals is provided in the appendix of the aggregate dashboard report.
[46] Baillie AJ, Mattick RP, Hall W (1995). "Quitting smoking: estimation by meta-analysis of the rate of unaided smoking cessation". Aust J Public Health 19 (2): 129–31.

rates in the current study are either around the level of an unassisted quit or higher. However, a higher response rate (optimally 50% or greater) would yield a more accurate estimate of the true quit rate for these programs.

Tobacco Reduction Outcomes

Additional analyses were conducted with 4-month follow-up data of respondents that were *not* abstinent at the time they completed the 4-month survey. It appears that program completers and drop outs that were non-abstinent at 4-month follow-up were able to, on average, reduce the number of cigarettes they smoked per day since program enrollment. More specifically, program completers reported smoking an average of 22 cigarettes per day at enrollment and an average of 1 cigarette per day at 4-month follow-up. Drop outs reported smoking an average of 15 cigarettes per day at enrollment and 1 cigarette per day at 4-month follow-up. The similar results seen for both program completers and drop outs is likely partially due to differing definitions of program completion and drop out used by grantees (as discussed earlier in this report). Despite this limitation, those that were not abstinent 4-months after their most recent enrollment appear to have substantially reduced their tobacco use. This suggests that grantee programs are providing participants with the tools they need to reduce their tobacco use, which could, in turn, help them be more successful in quitting completely in the future.

Self-Reported Cessation Medication Use

Respondents to the 4-month follow-up survey were asked whether they had made a quit attempt "since participating in the cessation program" [48]. Those that reported making a quit attempt were asked to report any cessation medications used to aid their quit attempts. Of the respondents that reported making a quit attempt and that were abstinent at 4-month follow-up, 64% reported using one or more cessation medication—41% used NRT only, 21% used Chantix only, and 3% used Zyban/Wellbutrin and NRT. For those that had made a quit attempt but were not abstinent at 4-month follow-up, 61% reported using one or more medications—49% reported using NRT only, 9% Chantix only, 1% used Zyban/Wellbutrin and NRT and 2% used Chantix and NRT. It appears that most participants that made one or more quit attempts used some form of cessation medication. While it would be expected that those that were abstinent might report greater use of cessation medications, as counseling used together with medication has been found to lead to better outcomes than counseling alone, there is not currently enough data to test this assertion. Additionally, the current wording of the question ("since participating

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[47] "Guide to quitting smoking. A word about quitting success rates". American Cancer Society. January 2011. http://www.cancer.org/Healthy/StayAwayfromTobacco/GuidetoQuittingSmoking/guide-to-quitting-smoking-success-rates. (last revised 6/27/2011)

[48] A note of caution regarding these figures: Survey respondents are asked the following question "Did you try to quit using tobacco since participating in this program?" and if they say "yes", then they are asked which medications they used. They may interpret the phrase "since participating in this program" to mean since they completed / dropped out of the program, rather than since program enrollment (the intended meaning). Therefore, the proportion reporting med use may be a low estimate of the proportion that actually used cessation medications to assist in their quit attempts.

in the program") could lead to different interpretations by respondents (e.g. since enrollment; between when they stopped participating in programming and when they were contacted to complete the survey). Despite these limitations, these data suggest that grantees were providing at least some portion of program participants with adequate information about and access to cessation medications.

While actual participant use of medications is hard to measure, more accurate documentation of cessation medications dispensed to clients within each grantee program may help provide more solid data against which a judgment could be made about cessation medication use within grantee programs. Such documentation of medications distributed by each grantee program was started in March 2011 with the latest iteration of the DPH Access database; however, grantees were not required to back-enter their medication distribution information from the beginning of the grant contract, so medication distribution records most likely will not be complete for most grantees by the end of the contact period. In the future, this type of documentation should be required of grantees starting at the beginning of the contract. Additionally, while self-reported medication use at follow-up is not a perfect measure of use, it can provide insight into why program participants were more or less successful in quitting. In the future, self-reported medication use, if asked at 4-month follow-up, should use NAQC MDS question wording to increase the reliability and validity of responses; however, collection of this data at 7-months post enrollment is the more established measurement period.

Program Utilization & Quit Outcomes

Program utilization[49] for 4-month survey respondents that were abstinent versus not abstinent at follow-up were analyzed. Of those that reported abstinence at 4-month follow-up, 59% attended 5 or more counseling sessions, 36% attended 1-4 counseling sessions, and 5% did not attend any sessions during their most recent enrollment. For those that were *not* abstinent at follow-up, 29% attended 5 or more counseling sessions, 54% attended 1-4 counseling sessions and 17% did not attend any sessions. While the results seem to support the tobacco cessation literature that indicates that greater program utilization typically results in improved abstinence rates[50], the current results are based on 20% of eligible survey participants. These results, therefore, may not be typical for most program enrollees.

Other Self-Reported Changes to Smoking Habits

Respondents were also asked whether they made any changes to their smoking habits. Almost three-quarters (74%) of respondents indicated that they had made some change. Of these respondents, about a third (34%) said that they had reduced or no longer smoked at home, 21% said they did not smoke at work or in their car, 25% reported not smoking in public, 12% reported only smoking outside, and 18% reported making other changes to their smoking habits

[49] Number of counseling sessions recorded in the Attendance Tracking Form associated with survey respondent's most recent enrollment only.

[50] 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.

(other than quitting). While this is self-reported data, it suggests that the grantee programs are relaying important information about ways that participants can help themselves quit and/or information about the importance of reducing other's exposure to tobacco smoke.

Outcomes observed at 4-month follow-up need to be tempered by the fact that only 20% of eligible participants completed a survey. However, while the response rate to this survey was low, and results are likely not representative of all program participants, there are some trends that point to potential program successes. For example, 4-month 30-day abstinence rates are either close to or higher than the rate of unassisted quitting and participants that were unable to quit completely appear to have been able to substantially reduce their tobacco use. Generally, it appears that those that were able to quit attended more counseling sessions. Additionally, it appears that participants are taking advantage of the availability of cessation medications to aid in their quit attempts and many report making other changes to their smoking habits to help them quit and to help reduce others exposure to tobacco smoke. In the future, it is suggested that either grantees receive more training and additional resources to collect 4-month follow-up data or that an external data collection firm be hired to collect this data.

7-Month Follow-Up: Long-term Outcomes

The key long-term outcome of interest at the 7-month post-enrollment follow-up time point is self-reported 30-day point prevalence abstinence. As discussed throughout this report, this is becoming an established standard for long-term outcome assessment for tobacco cessation programs[51]. Abstinence rates measured at 7-months post-enrollment, therefore, have the potential to be compared to other programs in Connecticut and in the United States that utilize these standards.

The following 7-month abstinence rates were calculated similarly to the 4-month abstinence rates, where in order to be considered abstinent, respondents needed to report being completely abstinent from all forms of tobacco for 30 or more days at the time they completed the 7-month follow-up survey. Clients that were not using tobacco or who were missing tobacco use status at enrollment were excluded from the quit rate analysis. In addition to the results presented below, a selection of 7-month follow-up results is also displayed in the accompanying aggregate dashboard report (Appendix A).

A total of 105 enrollees had valid 7-month follow-up survey data, which represents 14% of those eligible to complete the survey and 7.5% all clients served by the community-based and SMI/SUD tobacco cessation programs. Therefore, while abstinence rates are accurate for those

[51] NAQC. (2009). Measuring Quit Rates. Quality Improvement Initiative (L. An, MD, A. Betzner, PhD, M.L. Luxenberg, PhD, J. Rainey, BA, T. Capesius, MPH, & E. Subialka, BA). Phoenix, AZ.

surveyed (i.e. responder quit rates), they are not representative of all clients served by these programs.

Analysis of 30-day abstinence rates for those that responded to the 7-month follow-up survey, reveal a responder quit rate (RR)[52] of 11.4% (95% CI: 6.1%, 19.6%). Again, the responder quit rate is considered a liberal estimate of the true quit rate, as it does not represent all program participants—in this case only 14% of eligible participants. The more conservative 30-day intent-to-treat quit rate (ITT), which considers all program enrollees that should have responded to the 7-month follow-up survey, is 2.1% (95% CI: 1.29%, 3.5%). The "true" 7-month quit rate theoretically lies somewhere between 2.1% ITT estimate and 11.4% RR estimate. The large gap between these two estimates is due to the small proportion of eligible clients that responded to the survey. If more eligible participants would have completed a survey, the RR and ITT rates would be closer together, and, in general, the higher the response rate (# completions/# eligible) would have led to more accurate quit rate estimate[53]. While these 7-month abstinence rates fall close to the abstinence rates for those that quit unassisted (4-7%), there was an overwhelming amount of missing 7-month follow-up data which makes the estimates likely very inaccurate. Due to this lack of missing data, comparisons of these abstinence rates to those of other similar programs are not provided here. In the future, a higher response rate (optimally 50% or greater) would yield a more accurate estimate of the true quit rate for these programs. These rates could then be more reasonably compared to other programs that use similar follow-up methodology.

Tobacco Reduction Outcomes

Additional analyses were conducted with 7-month follow-up data from respondents that were *not* abstinent at the time they completed the 7-month survey. It appears that program completers and drop outs that were non-abstinent at 7-month follow-up were able to, on average, reduce the number of cigarettes they smoked per day since program enrollment. More specifically, both program completers and drop outs reported smoking an average of 17 cigarettes per day at enrollment and an average of 1 cigarette per day at 7-month follow-up. As discussed earlier, the similar reduction seen amongst completers and drop outs is likely at least partially due to the differing definitions of program completion and drop out used by grantees. These two groups, therefore, may be more alike than different. Despite this limitation, those that were not abstinent 7-months after their most recent enrollment appear to have substantially reduced their tobacco use. This suggests that grantee programs are providing participants with some useful tools to reduce their tobacco consumption, which could, in turn, help them be more successful in quitting completely in the future.

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[52] # 30-day abstinent / # who responded to the survey

[53] A Primer on Tobacco Abstinence Rates, which provides more detail about quit rate calculations, is also provided in the appendix of the aggregate dashboard report.

Self-Reported Cessation Medication Use

Respondents to the 7-month follow-up survey were also asked whether they had made a quit attempt "since participating in the cessation program". Those that reported making a quit attempt were asked to report any cessation medications used to aid their quit attempts. Of the respondents that reported making a quit attempt and were abstinent at 7-month follow-up, 50% reported using one or more cessation medication—33% used NRT only, 8% used Chantix only, and 8% used Chantix and NRT. For those that had made a quit attempt but were not abstinent at 7-month follow-up, 49% reported using one or more medications—37% reported using NRT only, 1% used Zyban/Wellbutrin only, 11% used Chantix only, and 1% used Chantix and NRT. It appears that most participants that made one or more quit attempts used some form of cessation medication. While it would be expected that those that were abstinent might report greater use of cessation medications, as counseling used together with medication has been found to lead to better outcomes than counseling along, there is not currently enough data to test this assertion. Additionally, the current wording of the question ("since participating in the program") could lead to different interpretations by respondents (e.g. since enrollment; between when they stopped participating in programming and when they were contacted to complete the survey). Additionally, the twelve respondents that were quit and responded to this question represent only two grantee agencies (FHCHC and GFHC), so results may not be typical of abstinent participants across grantee programs. Despite these limitations, these data suggest that grantees were providing at least some portion of program participants with adequate information about and access to cessation medications.

While actual participant use of medications is hard to measure, more accurate documentation of cessation medications dispensed to clients within each grantee program may help provide more solid data against which a judgment could be made about cessation medication use within grantee programs. As of March 2011, with the latest iteration of the DPH Access database, grantees were asked to start documenting cessation medications in their DPH databases; however, grantees were not required to back-enter their medication distribution information from the beginning of the grant contract, so medication distribution records most likely will not be complete for most grantees by the end of the contact period. In the future, this type of documentation should be required of grantees starting at the beginning of the contract. Additionally, while self-reported medication use at follow-up is not a perfect measure of use, it can provide insight into why program participants were more or less successful in quitting. In the future, self-reported medication use, asked at 7-month follow-up, should use NAQC MDS question wording to increase the reliability and validity of responses.

Program Utilization & Quit Outcomes

Program utilization[54] for 7-month survey respondents that were abstinent versus not abstinent at follow-up were analyzed. Of those that reported abstinence at 7-month follow-up, 50% attended 5 or more counseling sessions and 50% attended 1-4 counseling sessions during their most recent enrollment. For those that were not abstinent at follow-up, 41% attended 5 or more counseling sessions, 45% attended 1-4 counseling sessions and 14% did not attend any sessions. While the results seem to support research that indicates that greater program utilization typically results in improved abstinence rates[55], they are based on 14% of program participants that were eligible to take the survey. Results, therefore, may not be accurate for most program enrollees.

Other Self-Reported Changes Made to Smoking Habits

Respondents were also asked at 7-month follow-up whether they had made any changes to their smoking habits. Over three-quarters (76%) of respondents indicated that they had made some change to their smoking habits. Of these respondents, about 30% said that they had reduced or no longer smoked at home, 10% said they did not smoke at work, 17% did not smoking in their car, 19% reported not smoking in public, 18% reported only smoking outside, and 17% reported making other changes to their smoking habits (other than quitting). While this is self-reported data, it suggests that the grantee programs may have made a long-term impression on program participants regarding reducing other's exposure to tobacco smoke as well as ways that participants can help themselves move closer to tobacco abstinence.

The outcomes observed at 7-month follow-up need to be tempered by the fact that only 14% of eligible participants completed a survey. However, while the response rate to this survey was low and results are likely not representative of all program participants, there are some trends that point to potential program successes. While 30-day abstinence rates were around that of unassisted quitting, participants that were unable to quit completely appear to have been able to substantially reduce their tobacco use. It also appears that those that were able to quit attended more counseling sessions than those that were not quit. Additionally, it appears that participants are taking advantage of the availability of cessation medications to aid in their quit attempts and many report making other changes to their smoking habits to help them quit and to help reduce others exposure to tobacco smoke. In the future, it is suggested the 7-month post enrollment follow-up be conducted using methodological standards such as those set forth by NAQC and that data collection be conducted by an external data collection organization with experience collecting this type of data. This will help increase the chances that valid and reliable outcome data are collected.

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[54] Number of counseling sessions recorded in the Attendance Tracking Form associated with survey respondent's most recent enrollment only.

[55] 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.

Pregnancy Outcomes

Grantees were to record the pregnancy status of program participants at enrollment. Those that were documented as being pregnant at the time of enrollment were to be contacted to assess pregnancy outcomes using the Pregnancy Outcome Form once the pregnancy outcome was known. Grantees could alternatively use a client's medical records to complete the form. Between September 2009 and June 30, 2011, a total of 11 program enrollees (0.8% of all enrollees) were documented as being pregnant at program enrollment. Of these 11 enrollees, only 1 had pregnancy outcome data. There were no adverse outcomes recorded for this birth. Data collection around pregnancy status was clearly seen as intrusive or not a priority by most grantees. In the future, CT DPH may want to find another avenue for assessing the birth outcomes of pregnant tobacco users (e.g. statewide or national surveys; CT PRAMS/PRATS).

Summary of Participant Outcomes

Overall, tobacco abstinence outcomes for the community and SMI/SUD programs were similar to or slightly higher than those observed for unassisted quitting. While these results are lower than expected given tobacco abstinence rates typically observed for those that have received cessation counseling and/or cessation medications, the observed outcome results for these programs is likely inaccurate, as response rates at each data collection time point were low (50% at program completion/drop out, 20% at 4-month follow-up, and 14% at 7-month follow-up, respectively). Response rates of 50% or higher at each time point would be needed to make a more solid judgment about the effectiveness of this tobacco cessation initiative. Despite this substantial limitation, results provide some insight into the potential success of these programs in helping program participants reduce their tobacco consumption or quit using tobacco completely (tobacco abstinence). For example, most respondents indicated that they tried to quit using tobacco either during the program or sometime between program enrollment and follow-up. Additionally, it appears that those that attended more counseling sessions were more likely to be abstinent at follow-up and those that were not abstinent at follow-up appear to have been able to substantially reduce their cigarette consumption. It also appears that participants took advantage of the availability of cessation medications and utilized them in their quit attempts. Participants also reported making changes to their smoking habits in an effort to help them quit and to reduce other's exposure to tobacco smoke. More data collection is needed, however, to make any concrete statement regarding the effectiveness of the community and SMI/SUD tobacco cessation programs in helping tobacco users abstain from tobacco use.

To this end, data collection needs to be more standardized (instruments and methodology) and more consistently collected from 70% or more of program participants. Standardized follow-up data collection, using standards such as those established by the North American Quitline Consortium (NAQC) and outsourcing 7-month follow-up data collection to an external organization with experience in collecting this type of data is recommended. In terms of pregnancy outcomes, CT DPH may want to defer to other statewide or national pregnancy outcome data (e.g. PRAMS, PRATS) and not rely on grantee data collection. Grantees should

only be required to collect program enrollment data, track program utilization (number of sessions and minutes per session), as well as maintain up-to-date participant contact information. Making these changes will help decrease grantee data collection burden (and allow them to spend more time attending to cessation programming) and increase the chances that valid and reliable outcome data are collected.

What is the cost per enrollment and cost per quit for the intervention?

The section describes the results of a cost per quit and cost per enrollment analysis conducted for the Connecticut Department of Public Health (CT DPH) Tobacco Cessation Programs Grant for fiscal year 2011 (July 2010 through June 2011). This time period was chosen as it reflects grantees' costs and outcomes for the latter part of the funded grant period, when grantees' services could be considered more mature.

Cost of the Intervention

The first component of a cost per quit analysis is the cost of the intervention. Based on data provided by the CT DPH, the total direct, indirect, and media costs are $126,769 (see Table 5). This is based on total dollar amounts that funded grantees invoiced for and that the DPH paid in FY 2011. The indirect administrative costs were calculated assuming an estimated 7% of program costs[56], totaling $8,293. The HGLHC Tobacco Cessation program was the grantee with the largest funding amount, representing 25% of the aggregate costs ($31,683). The GFHC Tobacco Cessation Program was the smallest grantee with only 12% of aggregate costs ($15,350).

Table 5. Direct, media and indirect costs by community grantee and overall

Grantee	Direct and Media Program Costs	Estimated Indirect Costs: DPH Admin (7%)	Total Cost
AIDS Project New Haven (APNH)	$22,641.00	$1,584.87	$24,225.87
Fair Haven Community Health Center (FHCHC)	$20,851.00	$1,459.57	$22,310.57
Generations Family Health Center (GFHC)	$14,346.00	$1,004.22	$15,350.22
Hartford Gay & Lesbian Health Collective (HGLHC)	$29,610.00	$2,072.70	$31,682.70
Hospital of St Raphael—Haelen Center (St Raphael)	$16,619.00	$1,163.33	$17,782.33
Ledge Light Health District (LLHD)	$14,409.00	$1,008.63	$15,417.63
TOTAL (all programs)	**$118,476.00**	**$8,293.32**	**$126,769.32**

[56] An explanation of the 7% estimated administration costs and literature references are provided under "Methodology".

The second component of a cost per quit is the total number of participants who quit smoking because of the funded program. This is achieved by multiplying a quit rate by the total number of enrollees. Quit rates are presented first below, followed by the total number of enrollees, and the product of those two figures.

Aggregate and Individual Program Quit Rates

In PDA's FY 2011 4-month follow-up survey, 167 participants responded to the survey and 38 (or 23%) indicated that they had quit using tobacco for 30 days or more (the preferred quit outcome measure, see Table 6 and Figure 1 below). The associated 95% confidence interval for the quit rate, based on a binomial distribution, is 17%-30%.

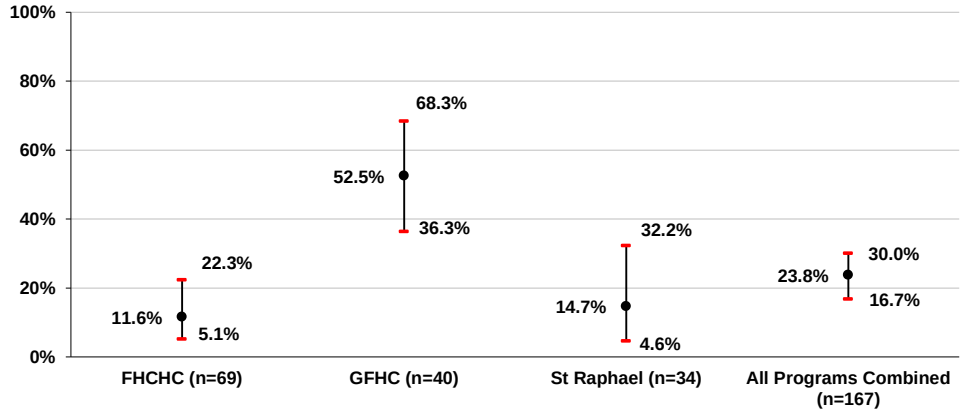
As described in the methodology section, quit rates and cost per quit analyses will be calculated only for individual funded programs with 30 or more completed surveys. Funded programs with fewer than 30 surveys would have a quit rate with a wide confidence interval, which could result in a potentially inaccurate cost per quit ratio. Table 6 below shows that three programs had fewer than 30 completed surveys: HGLHC, APNH, and LLHD. These three programs are not eligible to have cost per quit calculated for them independently. However, quit rates were calculated for FHCHC, GFHC, and St Raphael. The estimated quit rates for each program varied, from 53% for GFHC to 12% for FHCHC.

Table 6. Number of completed surveys and those eligible to be surveyed, and 4-month follow-up survey response rate and quit rate by individual cessation program and overall

Cessation Program	No. of Completed Surveys	No. Eligible to be Surveyed	4-month response rate	4-month quit rate (95% CI)
FHCHC	69	326	21.2%	11.6% (5.1% - 22.3%)
GFHC	40	131	30.5%	52.5% (36.3% - 68.3%)
St Raphael	34	108	31.5%	14.7% (4.6% - 32.2%)
HGLHC	18	75	24.0%	N/A
APNH	5	75	6.7%	N/A
LLHD	1	41	2.4%	N/A
TOTAL (all programs)	**167**	**756**	**22.1%**	**23.8% (16.7% - 30.0%)**

These abstinence figures are also displayed graphically in Figure 1 below.

Figure 1. Quit rate with 95% CI for individual programs and the all programs combined



High response rates are important since participants that do not respond to follow-up surveys are more likely to still be using tobacco. NAQC recommends quitlines strive for a response rate of at least 50%, and notes that results from surveys with lower responses rates should be interpreted with caution (2009). Based on the response rates obtained, we caution that the quit rates presented here may be inflated. However, more recent research suggests these quit rates may be more accurate that the conservative "intention to treat" quit rates.

Total Number of Enrollees and Total Estimated Number Quit

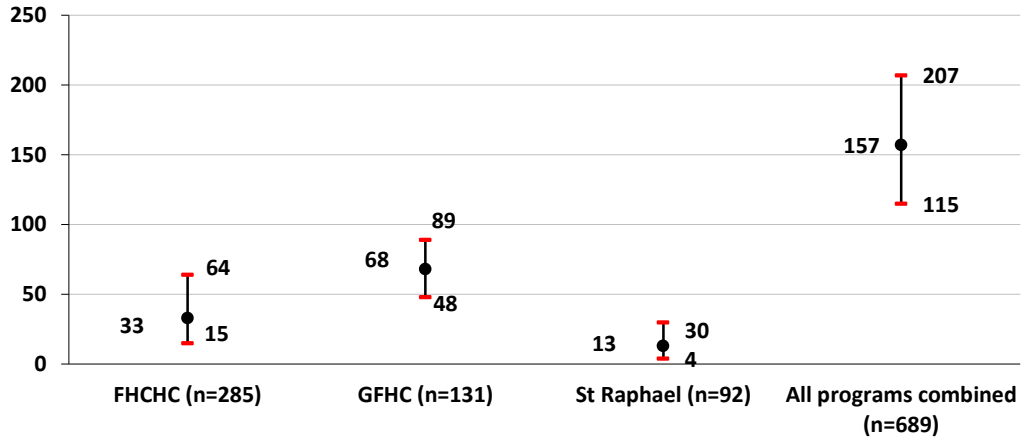
Because PDA's follow-up survey was not able to reach all eligible participants, the quit rate must be applied to the total number of enrollees in FY 2011 for the program overall and to each eligible, individually funded program. The total number of enrollees should use the same NAQC-defined parameters as the quit rate in order to produce a consistent total number of enrollees, as described in the methodology. Table 7 below shows the number of tobacco users enrolled in each program and overall, as well as the number eligible to be included in the denominator of the cost per quit calculations according to NAQC standards as adapted to the Tobacco Cessation Grant Program.

Table 7. Eligible enrollees and quit rates by grantee and in aggregate (community programs only)

	No. enrollments	No. eligible enrollments	Quit rate (95% CI)	Total No. enrollees quit (95% CI)
FHCHC	304	**285**	11.6% (5.1% - 22.3%)	33 (15 – 64)
GFHC	142	**131**	52.5% (36.3% - 68.3%)	68 (48 – 89)
St Raphael	95	**92**	14.7% (4.6% - 32.2%)	13 (4 – 30)
HGLHC	107	**100**	N/A	N/A
APNH	34	**30**	N/A	N/A
LLHD	57	**51**	N/A	N/A
TOTAL (all programs)	739	**689**	23.8% (16.7% - 30.0%)	157 (115 – 207)

To calculate the total number of cessation program participants who quit in FY 2011, the total number of eligible enrollees was multiplied by the quit rate for each eligible individual program and for all programs combined. To obtain a confidence interval for the total number of enrollees quit, the total number of eligible enrollees was also multiplied by the upper and lower bounds of the quit rate confidence interval (see Table 7 above and Figure 2 below).

Figure 2. Estimated number of cessation program enrollees that quit (95%CI) for individual community programs and all programs combined



Across all funded programs, an estimated 157 tobacco users quit, with a 95% confidence interval ranging from 115 to 207. For the individual funded grant programs, GFHC had the highest number of quits with 68 (CI 48 – 89), followed by FHCHC with 33 (CI 15 – 64) and St Raphael (13 quits, CI 4 – 30).

Cost per Quit

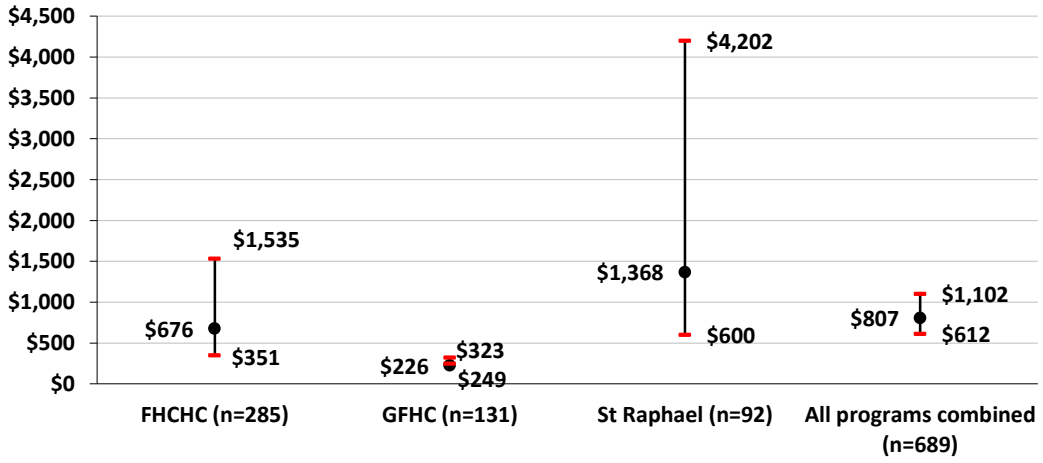
As described above, cost per quit is calculated by dividing total program costs by the estimated number of enrollees who quit for each individually funded project and for all programs combined. In order to create a cost per quit confidence interval, the total program cost is also divided by the upper and lower bounds of the estimated number of enrollees who quit.

Table 8 below shows that the cost per quit for all eligible programs combined is $808, with an associated 95% confidence interval of $612 to $1,102. Due to its relatively low program costs and relatively high estimated number of enrollees who quit, GFHC had the lowest cost per quit at $226 (CI $249 - $323). This is significantly lower than the average of all programs combined. FHCHC and St. Raphael both had cost per quits that were similar to all programs combined ($676 and $1,368, respectively). Figure 3 depicts these findings graphically.

Table 8. Cost per quit by individual program and for all programs combined (FY 2011)

Cessation program	Total cessation program costs	Estimated # of enrollees who quit (95% CI)	Cost per quit (95% CI)
FHCHC	$22,310.57	33 (15 – 64)	$676.08 ($351.04 – $1,534.95)
GFHC	$15,350.22	68 (48 – 89)	$225.74 ($249.36 – $322.80)
St Raphael	$17,782.33	13 (4 – 30)	$1,367.87 ($600.27 – $4,201.87)
TOTAL (all programs)	$126,769.32	157 (115 – 207)	$807.45 ($612.41 - $1,102.34)

Figure 3. Cost per quit by individual program and for all programs combined (FY 2011)



Comparison to Other Cessation Programs

The cost effectiveness of the community cessation programs can be evaluated relative to the cost effectiveness of other similar cessation programs. For example, PDA compared the cost per quit of Connecticut's community cessation grant program with that of the Minnesota Quitplan® Centers cessation programs. These programs are similar to the CT programs in that they provide face-to-face, multi-session counseling programs for free to community members and provide NRT to uninsured or underinsured individuals.

In 2004 dollars, the cost per quit of the Minnesota Quitplan Centers program is estimated at $2,567 (CI $2,108 - $3,156), excluding media costs (An et al., 2010). Adjusted for inflation (3%), this equates to a cost per quit of $3,157 (CI $2,593- $3,881, see Table 9). Connecticut's cost per quit ($807) is significantly lower than that of the Minnesota Quitplan Centers, suggesting that the Connecticut's cessation program is more cost effective than its Minnesota counterpart.

Table 9. Comparison of cost per quit of the Minnesota Quitplan Centers and CT community tobacco cessation programs (in 2011 dollars)

Cost per Quit (w/95% CI)	
Minnesota Quitplan Center cessation programs	**CT community cessation programs**
$ 3,157.09 ($2,592.57 - $3,881.48)	$ 807.45 ($612.41 – $1,102.34)

The cessation program administered by the CT DPH achieved an aggregate cost per quit of $807 for FY 2011, significantly lower than a similar program in Minnesota. Unfortunately, half of the funded cessation programs (APNH, HGLHC and LLHD) were excluded from having a cost per quit ratio calculated for them individually, which limits our ability to measure cost-effectiveness across all individually funded programs. The three programs for whom cost per quit was calculated individually (FHCHC, GFHC and St Raphael) showed some variation. GFHC achieved the lowest cost per quit of only $226 per quit, which is significantly lower than the average cost per quit for all programs combined. The cost per quit for FHCHC ($676) and St Raphael's ($1,368) was higher, but similar to the average for all programs combined.

Cost Per Enrollment

Because three of the six individual programs were excluded from the cost per quit analyses because the total number of surveys for each program was less than 30, we have conducted a cost per enrollment analysis to show variation in the number of unique enrollments by the amount paid to each grantee in FY 2011. The benefit of this analysis is that it can be conducted for all programs, which allows them to be compared to each other. The limitation of this analysis is that it does not take into account the relative efficacy of each program in helping clients quit.

The cost per enrollment was calculated by dividing the total cost (described as part of the cost per quit analysis, see Table 8 above) by the number of eligible enrollees (calculated as part of the cost per quit analysis, see Table 7 above). This is done for individual programs and all programs combined.

In aggregate, the cost per enrollment for all programs combined was $184 (see Table 10 below). When examining individual programs, however, we see variation. With its moderate cost and high number of enrollees, FHCHC had the lowest cost per enrolment, at only $78. Two funded programs have a cost per enrollment in the $100 range (GFHC at $117 and St Raphael at $193). Two more grantees have a cost per enrollment in the $300 range (LLHD at $302 and HGLHC at $317). With its relatively high total cost and relatively low total number of enrollments, the program with the highest cost per enrollment is APNH at $808.

Table 10. Cost per enrollment by cessation program

	Total Cost	No. enrollees with valid tobacco use status at intake	Cost per enrollment
HGLHC	$ 31,682.70	100	$ 316.83
APNH	$ 24,225.87	30	$ 807.53
FHCHC	$ 22,310.57	285	$ 78.28

St Raphael	$ 17,782.33	92	$ 193.29
GFHC	$ 15,350.22	131	$ 117.18
LLHD	$ 15,417.63	51	$ 302.31
TOTAL (all 6 programs)	**$ 126,769.32**	**689**	**$ 183.99**

As with cost per quit, great variation was seen in cost per enrollment, which could be calculated for all six individually funded programs and for all programs combined. The average cost per enrollment for all programs combined was $184. Individual programs ranged in cost per enrollment from $78 for FHCHC to $808 for APNH. All other programs' cost per enrollment fell in the $115 - $320 range.

Summary

As few benchmarks exist for cost per quit and cost per enrollment analysis, it is difficult to draw conclusions about the cost-effectiveness of the program as a whole. Additionally, a small number of completed follow-up surveys make it impossible to compare cost per quit across all funded programs. However, these findings set a benchmark against which future cost per quit and cost per enrollment analyses can be judged for individually funded programs and for the initiative in aggregate.

What kind of systems change do programs report?

Most grantees engaged in at least one tobacco-related systems change as part of the current DPH tobacco cessation grant initiative. The degree to which changes have been made, the number and types of changes, the extent to which changes have been made intentionally as "systems changes", and the likelihood that changes will continue beyond DPH funding, differs across sites. The following is a summary of several systems change categories.

Identification and Documentation of Tobacco Use Status and Interest in Cessation Assistance. All grantees have some system, more or less formal, in place to identify tobacco users, document client tobacco use status and assess client interest in receiving cessation services.

Patient / Client Referral Procedures, Protocols, or Systems. All grantee organizations have some mechanism for referring clients to internal tobacco cessation services. This mechanism is more or less standardized within each organization, and, in some organizations, cessation program referral procedures were implemented before the current DPH funding period. Medical and mental health providers are often the staff providing referrals to these on-site cessation programs. Additionally, all programs provide referrals to the Connecticut Quitline at some point during the cessation counseling process.

Provider and Staff Training and Education. Most grantee organizations have provided some type of education, more or less formal, to staff and providers around tobacco cessation, most typically around brief intervention practices (e.g. "5As" or "2 As + R"). A few agencies also

trained a few staff on the best-practice cessation curriculum used by the program, to potentially act as back-up counselors.

Reporting, Feedback Loops, and Performance Measurement. Two community organizations track the extent to which providers or staff screen for tobacco use and provide referrals to cessation services as part of their current DPH grant activities. Providers or staff that have not adhered to the protocol or who have not provided many cessation program referrals are identified and the tobacco cessation counselor visits with these providers to encourage them to provide more referrals.

Organizational Goals, Missions, and Policies. Over half of grantees have implemented or plan to implement smoke-free policies as part of their current DPH-funded grant work (some organizations already had a smoke-free policy in place before the current DPH grant cycle). Minimally, these smoke-free policies cover the inside and "campus" of each organization and are intended to be for clients and staff. Some policies cover multiple locations (e.g. multiple clinic sites).

Coverage for Cessation Services / Treatment. Several organizations actively investigated additional resources to cover cessation treatment and pharmacotherapy. Several of the clinic-based grantee organizations work with each cessation program client (or potential client) to decipher whether cessation treatment is covered through the client's health insurance and educates clients about obtaining available benefits. Several grantees have also secured additional (non-DPH funded) NRT resources for clients that cannot afford to pay out-of-pocket for medications.

Other Strategies: Organizational Support. Support from influential staff, often within multiple levels of an organization, is needed to successfully implement changes such as those being undertaken by several grantees. Within most of the community grantee agencies, there appears to be a great deal of support amongst most staff for tobacco cessation treatment and, therefore, provision of cessation services or brief intervention (including referrals to cessation services) is consistent with this sentiment. Organizational support for cessation treatment is a bit more complex within the SMI/SUD grantee agencies, as historically, treatment for tobacco cessation has taken a back seat to treatment of other conditions; however, it appears that a paradigm shift is beginning to occur within these agencies as part of this grant initiative, as more clinicians realize the importance of cessation treatment for their clients and are beginning to help their clients connect with cessation treatment.

Almost all community and SMI/SUD organizations have implemented (or plan to implement) one or more tobacco-related systems change aligned with best practices in tobacco cessation. Several of the implemented changes have the potential to remain in place beyond the current DPH funding period, as, by their very nature, they are systemic changes that have been embedded into daily organizational operations. This is particularly true for tobacco user identification and smoke-free policies. In contrast, the changes with the least chance of being sustainable are those that require regular maintenance by grant staff whose positions are fully or mostly funded by the current DPH grant. However, within most of the community

organizations, there is significant support for tobacco cessation treatment amongst key staff which may increase the likelihood that agencies will find other resources to sustain their efforts. In contrast, while historically SMI / SUD agencies have not been as supportive of cessation treatment, there is a norm change that is beginning to occur as a result of the systems change strategies being implemented within these agencies[57]. In the future, systems changes should continue to be a part of tobacco cessation initiatives; however, the types of changes may differ depending on the type of funded agency (e.g. clinic-based, community organization) and specific systems change activities should be defined up front and discussed with each grantee. Additionally, all agencies would benefit from training staff on making referrals to the CT Quitline—either providing a direct fax referral or providing Quitline information to clients.

What are successes and challenges for the initiative overall?

Successes

The following is a summary of some of the key successes mentioned throughout this report.

Recruitment and referrals

Being able to pull from within an agency's existing client based proved to be successful for most grantees. This is evidenced by the fact that most participant referrals came through either a physical or mental health provider, typically within the grantee agency.

Numbers served

Between September 2009 and June 30, 2011, grantees served a total of 1,399 unique tobacco users (1,430 at the time of data submission in August 2011). While this represents approximately 75% of the aggregate goal of numbers served, reach calculations reveal that the community and SMI/SUD programs are serving a larger proportion of the tobacco using population in Connecticut than has been observed in other studies of similar programs.

Serving the underserved

All grantees provided tobacco cessation services to underserved populations with high rates of tobacco use. This includes those that identify as Black or African-American, LGBT and Hispanic/Latino as well as those with a high school degree or less, those that have annual incomes of < $15,000, and those that rely on government-sponsored health insurance (75% of enrollees). Most program participants also reported either past or present treatment for one or more physical or mental health conditions.

[57] Further details and discussion are provided in the following report: *Connecticut Community and SMI / SUD Tobacco Cessation Program Evaluation: March 2011 Site Visit Report*, submitted by PDA to CT DPH in June 2011.

Program utilization

Over a quarter (27%) of program participants attended five or more cessation counseling sessions during their most recent enrollment. Further, when looking across multiple program enrollments, on average, participants attended 4.5 sessions. When comparisons are made to similar programs, program utilization by the CT community and SMI/SUD programs appears to be similar or higher.

Reduction in tobacco use & other smoking habits

Most program participants appear to have made quit attempts during or after program enrollment. Additionally, program participants that were not able to quit tobacco use completely appear to have been able to substantially decrease the number of cigarettes they smoke per day since program enrollment. Program participants also report making changes in smoking habits that likely helped reduce their tobacco consumption as well as reduce the tobacco smoke exposure of others at home, work as well as in other public places.

Systems changes

Almost all community and SMI/SUD organizations have implemented (or plan to implement) one or more tobacco-related systems change aligned with best practices in tobacco cessation. Several of the implemented changes have the potential to remain in place beyond the current DPH funding period, as, by their very nature, they are systemic changes that have been embedded into daily organizational operations. This is particularly true for tobacco user identification procedures and smoke-free policies. Additionally, norms are beginning to change within the behavioral health organizations to be more supportive of tobacco dependence treatment, which has historically not been the case.

Challenges

Participant recruitment

While several agencies struggled with participant recruitment toward the beginning of the contract period, most were able to increase the number of enrollments after a period of start-up. For some agencies, however, recruitment of certain target populations was very difficult. This typically occurred when the target population was either an expansion of or a shift away from the typical client base of the agency.

Data collection

The largest challenge for most grantees was data collection. While data collection on some key forms such as program enrollment and attendance tracking improved and were generally complete, the rest of the data collection was a challenge for most grantees. While it makes sense for grant staff, particularly counselors, to complete enrollment (intake) forms with clients and track program attendance, the other data collection elements are somewhat out of the scope of the typical practice or experience of grant staff.

The burden of data collection on community and SMI/SUD grantees was too great, particularly before changes were made to follow-up in early 2011. With eight separate forms to keep track of, many of which were used for multiple purposes, this was too much for most grantees. This

was particularly true for programs where the counselor was also the data collector and data entry person. In regard to follow-up data collection, in particular, grant staff typically do not have the right experience or training to carry out this task. Overall, grantees were not funded at an adequate level to conduct all of the data collection that was required of them by CT DPH.

Summary

In aggregate, the community and SMI/SUD programs have seen many successes as well as challenges. Grantee programs have been able to reach a diverse group of tobacco users from within their communities that are typically not served by conventional tobacco control programs, many of whom have one or more co-morbid physical or mental health conditions. While most grantee programs got off to a rough start in terms of participant retention, most grantee programs were able to recover and retain enrollees for several sessions. Most program participants appear to have made quit attempts during or after program enrollment and were able to make changes to their smoking habits to help themselves quit and to reduce other's exposure to secondhand tobacco smoke. While enough follow-up data has been collected to yield a stable tobacco abstinence rate for the initiative, program participants appear to have to have been able to reduce their tobacco use after attending grantee programs. Additionally, many grantees were able to implement systems changes within their agencies that helped to reinforce tobacco cessation goals, some of which will likely be sustained beyond the current funding cycle. Many grantee agencies found it very difficult, at least initially, to recruit and retain participants in their cessation programs—it took some time for agencies to get the word out to the right people or partner agencies. For several agencies, this problem reduced or disappeared after an initial start-up period. For others this remained a challenge, particularly if they needed to rely on recruiting participants from outside of their agency's typical client base. And, ultimately, the largest challenge, for most grantees was keeping up with the tremendous amount of data collection required by CT DPH. This was greatly unfortunate, as they were unable to keep up with collection of key data that could have helped them show the success of their programs. Steps need to be taken in future grant initiatives, to help reduce this data collection burden, streamline data collection, and to allow counselors to focus on providing tobacco cessation programming.

Recommendations

The following are key recommendations, based on the results as well as PDA's experience providing technical assistance to grantees, for CT DPH to consider for future face-to-face tobacco cessation grant initiatives.

Target Populations

Optimally, grantees should be chosen to reach priority tobacco using populations by the agency's track record of serving those populations and should not be expected to successfully serve a large number of tobacco users that are outside of their typical service community, at least not early in a program's lifecycle. For agencies that either do not directly provide services on-site or need to recruit from outside of their agency's typical client base, additional

community outreach (including recruitment within partner agencies), broadcast or print media or other marketing strategies may need to be intensified. These agencies may need larger marketing budgets than those that can recruit from within their existing client base. Published literature regarding marketing of tobacco cessation programs, particularly for priority populations (e.g. LGBT), should be used to inform marketing strategies.

Numbers Served

Given the numbers of clients served by community grantees under this funding initiative, it may be reasonable to assume that similar organizations could each serve 100-200 unique individuals during a two-year grant period. Grantee agencies that can recruit within the existing client base of their agency may be able to serve a greater number of participants than those that have to conduct more extensive community outreach to recruit clients. Additionally, grantee programs could likely serve more people after they become more mature. Finally, if grantee data collection burden is reduced substantially, programs may be able to serve more clients (see *Data Collection* recommendations below).

In the future, if grantee agencies are expected to bring in and serve a larger volume of program participants, a greater amount of budget for programming and, perhaps, broadcast media would be necessary. Additionally, the Connecticut Quitline could become a good source of referrals to community programs for callers that request additional assistance and/or are looking for face-to-face resources in their community to use in conjunction with or instead of Quitline services. In order for this to work well, CT DPH would need to provide the CT Quitline with the names of all currently funded programs and provide updates as changes are made.

Training & Participant Recruitment

Recruiting participants from within an agency's existing client base may require periodic training of agency staff on provision of brief intervention and referrals (i.e. ask, advise, refer). If on-site cessation services are not available, agency staff should be trained to provide referrals to the Connecticut Quitline (either provision of Quitline materials or use of the fax referral system). Conversely, if on-site programs are in need of additional recruitment mechanisms, the Connecticut Quitline could become a good source of referrals. Quitline callers that request additional assistance and/or are looking for face-to-face resources could be referred to face-to-face cessation counseling services in a nearby community as long as the Quitline is provided with regularly updated lists of currently funded programs.

Systems Changes

Systems change activities, such as those described in the PHS systems change guidelines and reports of the Multi-State Collaborative for Health Systems Change[58], should continue to be

[58] Public Health Service (PHS) Clinical Practice Guideline 2008 Update: http://www.ahrq.gov/clinic/tobacco/systems.htm ; Multi-State Collaborative for Health Systems Change: http://www.multistatecessationcollaborative.org/reports.php

encouraged within tobacco cessation grantee agencies, as they can help institutionalize tobacco cessation intervention and referral mechanisms that last beyond specific funding initiatives. Specific systems change activities should be tailored to the realities of each grantee agency (clinic, hospital, community organization), be well defined and discussed with each grantee up front.

Data Collection

Overall, grantees should only be expected to collect marketing data, enrollment data, track program utilization (sessions/minutes) and NRT distribution, maintain participant contact information, and, where appropriate (i.e. clinical settings), administer post-training forms to clinicians and providers implementing brief tobacco cessation interventions.

The following are some key recommendations for future data collection:

Participant Enrollment & Contact Information. Grantees should be expected to collect program enrollment information and maintain up-to-date participant contact information (e.g. phone number, email address). Contact information would need to be used for follow-up and be sent to the agency collecting follow-up data on a monthly basis. For this to happen, program participants would need to provide consent to share their contact information for follow-up purposes. This is best done at the time of enrollment. This may require an additional question and field added the enrollment form and associated database, to make it easier for grantees to administer.

Participant Characteristics. CT DPH may want to consider adding a question about use of menthol cigarettes to the enrollment and follow-up forms, as it has recently been shown to be associated with reduced odds of quitting[59], particularly among Black and Puerto Rican menthol users many of whom may have been served by the current community grantees. The NAQC MDS[60] currently includes an item on menthol use.

Marketing. Grantees should be allowed to document promotional program activities using their own databases or systems, using pre-defined categories.

Program Utilization. In addition to the number of sessions attended, grantees should track the number of minutes spent in each counseling session. This will allow for a more accurate picture of counseling intensity which then can be analyzed along with tobacco abstinence to gauge whether a certain amount of intervention is related to tobacco abstinence.

Cessation Pharmacotherapy. More accurate documentation of cessation medications dispensed to clients within each grantee program may help provide more solid data against which a

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[59] Delnevo,C.D., Gundersen,D.A., Hrywna,M., Echeverria, S.E., Steinberg,M.B. (October 2011). *Smoking-Cessation Prevalence Among U.S. Smokers of Menthol Versus Non-Menthol Cigarettes*. AJPM (41)(4): 357-365. Accessed 10/26/11: http://www.sciencedirect.com/science/article/pii/S0749379711004624 .

[60] Provided the following citation is used, the MDS may be copied or reproduced without permission: North American Quitline Consortium (NAQC). The Minimal Data Set for Evaluating Quitlines. Phoenix, AZ: NAQC; Dec. 2009.

judgment could be made about cessation medication use within grantee programs. In the future, this type of documentation should be required of grantees starting at the beginning of the contract. Additionally, while self-reported medication use at follow-up is not a perfect measure of use, it can provide insight into why program participants were more or less successful in quitting. In the future, self-reported medication use, if asked at 7-month follow-up, should use NAQC MDS question wording to increase the reliability and validity of responses.

Program Completion Status. In the future, instead of defining program participants by whether they were "program completers" or "drop outs", it would be more meaningful to compare participants with differing levels of program utilization (# of sessions and # of minutes in counseling) and compare their 7-month abstinence rates. This would be more in line with established data collection practices in tobacco cessation and would likely lead to more meaningful abstinence comparisons.

Provider Satisfaction & DHHS Post Training Data. As currently written, questions on the Provider Input Form and DHHS Post-Test are geared toward clinical settings (hospitals, health clinics) and are not necessarily applicable to other types of organizations. Therefore, a non-clinic-based version of these instruments should be developed to reflect the realities of the environment in these organizations, only for organizations that plan to train staff and/or implement brief interventions. Additionally, CT DPH should clearly identify the target audience for the form with each grantee during the contract negotiation process.

Participant Outcomes. Optimally, participant outcome data should be collected 7-months post program enrollment per emerging standards in the field, using standardized methodology and questions such as those provided with the North American Quitline Consortium's Minimal Data Set (NAQC MDS) and supported by the CDC. A few standardized patient satisfaction questions could be added to the survey as well, to eliminate use of a separate Patient Satisfaction Form. In addition, the MDS has items that are aimed at gathering information additional support services used as well as types of cessation medications that were used. Follow-up data collection should be conducted by an external agency with experience collecting similar data. The data collection agency should aim for a response rate of 50% or higher to increase the likelihood that abstinence rates will be more representative of all program participants.

If serious concerns exist regarding potential participant attrition, outcome data could also be collected 4-months post program enrollment using standardized MDS items and methodology (similar to the 7-month follow-up). However, it is recommended that data collection at program completion / drop out be eliminated or that grantees be provided with additional training and resources to collect data at this time point.

Pregnancy Outcomes. CT DPH may want to defer to other statewide or national pregnancy outcome data sources (i.e. CT PRAMS, PRATS), instead of relying on grantees to collect this data from program participants.

Cost Effectiveness. CT DPH could use the cost per quit and cost per enrollment figures provided in this report as benchmarks against which future cost per quit and cost per enrollment analyses can be compared within similar face-to-face cessation initiatives.

Grantee Feedback. Per suggestions indicated in the individual grantee narrative reports that accompany this aggregate report, CT DPH should consider talking with community and SMI/SUD grantees to learn from their experiences regarding what worked and what did not work in terms of outreach, programming, and data collection and to use the resulting lessons learned and successes to help improve future grant initiatives.

Appendices

Appendix A – Response Bias Analysis Result Tables

Appendix B – Aggregate Dashboard Report & Appendices (separate attachment)

Appendix C – Individual Grantee Narrative & Dashboard Reports (separate attachments)

Appendix A – Response Bias Analysis Result Tables

Program Completion / Drop-Out Response Bias: Variables exhibiting response bias

Significant Variable:	Valid N:	x^2 value:	D.F.	P-Value	Program Completion Response Bias:
Age	1806	35.06	6	<.001	Individuals age 45+ were more likely to respond to the survey than those less than 45 years of age at time of enrollment.
Gender	1811	7.622	1	<.012	Males were more likely to respond to the survey than females.
Race	1794	127.71	4	<.01	Individuals who reported a race of White or Black/African American were more likely to respond than those who reported a race of Asian, American Indian/Alaskan Native, or Other/Mixed at Intake.
Highest Education Level	1795	42.04	3	<.01	Individuals who reported having some college education or a college degree were more likely to respond than those with a high school education.
Hispanic Ethnicity	1801	39.53	1	<.01	Individuals who reported non-Hispanic ethnicity were more likely to respond to the survey than those reporting Hispanic ethnicity.
Primary Language	1792	33.63	1	<.01	Individuals reporting English as their primary language were more likely to respond than those who speak Spanish.
Referral Source	1771	16.67	1	<.01	Individuals who reported an enrollment referral source other than one of their health care providers (primary care, dentist, therapist, etc.) were more likely to respond than those reporting referrals from some other source (friends, family, work etc.).
Mental Health Treatment	1808	146.48	1	<.01	Those seeking current or past treatment for mental health disorders were more likely to respond than those not seeking treatment.
Physical Health Treatment	1789	70.25	1	<.01	Those seeking current or past treatment for physical health conditions were more likely to respond than those not seeking treatment.
Previous Quit Attempts at Intake	1802	52.43	1	<.01	Individuals who attempted to quit using tobacco at least once previous to enrollment in the program were more likely to respond to the survey than those who did not attempt at least one previous quit.
Cigarettes per Day at Intake	1714	16.72	2	<.01	Individuals who reported moderate to heavy cigarette usage were more likely to respond to the survey than those who reported light use at intake.
Smoking Status at Intake	1798	7.32	2	.026	Those who reported not smoking at all at intake were more likely to respond to the survey than those reporting they smoked some days or every day at intake.

Program Completion / Drop-Out: Variables with response bias compared to 30- day point prevalence

Significant Variable:	Valid N:	x^2 value:	D.F.	P-Value	Program Completion Outcome Bias:
Race	1038	71.35	4	<.01	Those who were White had higher outcomes than those who reported other race categories.
Highest Education Level	1039	10.18	3	.017	Those who responded and achieved a high school degree or GED had higher quit outcomes than other education levels.
Hispanic Ethnicity	1045	37.03	1	<.01	Those who were Hispanic had higher quit outcomes than non-Hispanic respondents.
Primary Language	1038	23.46	1	<.01	Those who reported Spanish as their primary language had higher quit outcomes than those reporting English as their primary language.
Mental Health Treatment	1046	92.08	1	<.01	Those receiving no past or present treatment for mental health disorders have higher quit outcomes than those who reported past or present treatment.
Physical Health Treatment	1038	37.48	1	<.01	Those receiving no past or present treatment for physical health conditions have higher quit outcomes than those who reported past or present treatment.
Previous Quit Attempts at Intake	1044	16.78	1	<.01	Those who had not attempted to quit at least once previous to enrollment had higher quit outcomes than those who did attempt at least one quite prior to enrollment.
Cigarettes per Day at Intake	998	16.72	2	<.01	Those respondents who reported light to moderate cigarette usage had higher quit outcomes than those who reported heavy cigarette usage at intake.
Smoking Status at Intake	1044	10.50	2	.005	Those reporting cigarette usage some days or not at all had higher outcomes than those who reported smoking every day at intake.

4-Month Follow-up Response Bias: Variables exhibiting response bias

Significant Variable:	Valid N:	x^2 value:	D.F.	P-Value	4-Month Follow-up Response Bias:
Age	1414	14.56	6	.024	Individuals who were age 35 to 54 at intake were more likely to respond to the 4-month survey than were other ages.
Gender	1420	7.94	2	.019	Male enrollees were more likely to respond to the survey than were females.
Race	1405	33.04	4	<.01	Individuals who reported being White or Black/ African American were more likely to respond to the survey than other races.
Hispanic Ethnicity	1409	4.44	1	.035	Those who indicated they were of Hispanic ethnicity were more likely to respond to the 4-month survey than those who indicated they were non-Hispanic.
Mental Health Treatment	1416	8.72	1	.002	Those who did not receive current or past treatment for mental health disorders were more likely to respond to the survey than those who reported seeking current or past treatment at intake.
Physical Health Treatment	1398	8.72	1	.002	Those who did not receive current or past treatment for physical health conditions were more likely to respond to the survey than those who reported seeking current or past treatment at intake.
Previous Quit Attempts at Intake	1413	5.39	1	.02	Individuals who did not try to quit using tobacco at least once prior to enrollment were more likely to respond to the survey than those who had attempted at least one quit attempt prior to enrollment.

4-month Follow-up: Variables with response bias compared to 30- day quit rate

Significant Variable:	Valid N:	x^2 value:	D.F.	P-Value	4-Month Follow-up Outcome Bias:
Mental Health Treatment	187	3.56	1	.05	Those who sought current or past treatment for a mental health condition had higher outcomes than those who did not seek current or past treatment for a mental health condition.

7-Month Follow-up Response Bias: Variables exhibiting response bias

Significant Variable:	Valid N:	x^2 value:	D.F.	P-Value	7-Month Follow-up Response Bias:
Age	1215	12.45	6	.05	Individuals who were age 18 to 34 at intake were more likely to respond to the 7-month survey than were those of other age brackets.
Physical Health Treatment	1201	7.42	1	.006	Individuals who did not seek past or present treatment for physical health conditions were more likely to respond to the 7-month survey than those who did seek past or current treatment for physical health conditions.

7-Month Follow-up: Variables with response bias compared to 30- day quit rate

Significant Variable:	Valid N:	x^2 value:	D.F.	P-Value	7-Month Follow-up Outcome Bias:
Physical Health Treatment	105	4.01	1	.045	Those who did not seek current or past treatment for physical health conditions have higher outcomes than those who did.