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Implementing State Tobacco Treatment Services: Lessons from the Massachusetts Experience

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Abstract

This case study was conducted between 2000 and 2003 to examine the implementation of community based tobacco treatment programs funded by the Massachusetts Department of Public Health Tobacco Control Program (MTCP). Four dimensions of implementation, drawn from several models of program evaluation are explored: (1) quantity of services, (2) quality of services, (3) implementation/use of systems, and (4) sustainability. The quantity of services delivered was high, reflecting MTCP's focus on increasing availability of services, particularly in underserved populations. The quality of physician-delivered tobacco intervention did not meet national benchmarks for delivery of all 5As (Ask, Advise, Assess, Assist, Arrange follow-up) and only about half of organizations reported routine systems for auditing tobacco use documentation. Implementation of systems to identify tobacco users and deliver tobacco treatment varied widely by community health settings, with low rates of tobacco use documentation found. Finally, in an era of greater competition for scarce prevention dollars, sustainability of services over time must be planned for from the outset, as indicated by the success of programs that sustained services by

proactively and creatively incorporating tobacco treatment into their organizations. This case study can inform states' policies in their design of tobacco treatment services in community health settings.

Keywords

Tobacco treatment policy; Program implementation; Comprehensive tobacco control; Case Study

Introduction

State health departments have undertaken numerous policy and program initiatives to reduce the individual and population burden caused by tobacco use (Jacobson, 1997). These strategies include regulatory activities such as indoor air restrictions, cigarette taxation, youth access (Cowling & Bond, 2005; Liang, Chaloupka, Nichter, & Clayton, 2003; Sung, Hu, Ong, Keeler, & Sheu, 2005); mass media efforts (Emery et al., 2005), and school health initiatives (Gingiss, Boerm, & Roberts-Gray, 2006). Some states have either currently on in the past, implemented strategies to advocate and support tobacco treatment services delivered through health care delivery organizations at the local level (e.g. Arkansas, Arizona, Massachusetts, Minnesota, Mississippi, New Jersey, New York, Ohio, Pennsylvania, and Vermont) (D. Jolicoeur, personal communication, May 2009). Cessation interventions are part of best practices for state comprehensive tobacco control programs (Centers for Disease Control and Prevention, 2007), and the key role of specialists in delivering them has been recognized (Fiore et al., 2008; Hughes, 2007; Pbert, Ockene, Ewy, Leicher, & Warner, 2000).

For nearly a decade, the Massachusetts Tobacco Control Program (MTCP) was committed to a comprehensive and integrated approach to tobacco control, including funding and training healthcare organizations to support tobacco treatment programs and specialists. This case study examines the history and evolution of the MTCP funding policy that supported a community-based system of tobacco treatment programs and investigates factors associated with program implementation and sustainability. It describes findings regarding four key dimensions of program evaluation related to the implementation of the Massachusetts tobacco treatment program, and discusses the utility of this information for stakeholders.

Background and Rationale

The evolution of the MTCP and its tobacco treatment component have been described elsewhere (Koh et al., 2005; Robbins & Krakow, 2000). In brief, MTCP has three goals: prevention of tobacco use initiation; cessation; and reduction in secondhand smoke exposure. In the late 1990s and early 2000s strategies to reach these goals included media campaigns, promoting change in tobacco use and second hand smoke exposure at the local level, and providing effective tobacco treatment services delivered in community health settings by trained specialists to high-risk, underserved populations.

While comprehensive state efforts such as the MTCP have resulted in substantial progress overall, limitations on the ability to assess the outcomes of individual components of a

comprehensive tobacco control program have been noted (Koh et al., 2005). The information that would be useful in assessing these types of programs can be expected to vary across different stakeholder groups. For example, the Department of Public Health needs data to determine whom to fund from money allocated by the state legislature and, in subsequent years, implementation and impact data are needed to secure future additional funding and ascertain what aspects of a program need to be strengthened. Health care organizations need data to identify targets for quality improvement efforts and to document services delivered to establish accountability to their funders. Health care providers need feedback on rates at which they identify and refer tobacco users to treatment. Tobacco treatment specialist (TTSs) to whom patients are referred for more intensive tobacco treatment need data to identify opportunities for skill improvement. Other states with potential interest in developing a tobacco treatment program need data on which to design and tailor their own policies, implementation plans and process and outcome evaluation plans.

A systematic examination of the extent of implementation of the well-designed Massachusetts program during its peak funding years has several benefits. It illuminates program processes that were in place, sheds light on how or where organizations and providers in the state could target efforts for improvement, and enables other states to increase their capacity to more effectively formulate and evaluate their own statewide cessation programs.

MTCP Implementation: A Case Study

The Public Health Service clinical guideline for treating tobacco dependence notes that interventions provided by more than one type of provider produce the highest cessation rates (Fiore et al., 2008). In 1994 Massachusetts implemented this concept as a statewide program by funding a cadre of trained tobacco treatment specialists (TTSs) where they are most needed, that is, in community health settings. At the time this study was implemented in 2000, there were 85 community health settings receiving MTCP funding to develop and deliver tobacco treatment services. These settings included a wide variety of agencies such as hospitals, community health centers and 'other' agencies (e.g. substance abuse, mental health, Women Infants and Children (WIC) and multi-service centers).

We began our case study by conducting key informant interviews with stakeholders to document the process by which the Massachusetts tobacco treatment program was implemented and to determine the types of information that would be of interest to the different stakeholders. Interviews were conducted by a qualitative methods expert with public health leaders and staff members, providers and administrators in community health settings, and with tobacco treatment specialists.

We then considered prior research on factors that affect implementation of tobacco treatment services (Emmons et al., 2000; I Ockene, & Houston Miller, 1997; JK Ockene et al., 1997; J Ockene & Zapka, 1997; Solberg et al., 1997; Oldenburg, Hardcastle, & French, 1996), guided by social-ecological theory (Green, 1994; Stokols, 1996; Winett, King, &

Altman, 1989) and organizational change theory (Goodman & Steckler, 1990; Kaluzny & Hernandez, 1988). This body of knowledge points to four broad dimensions of implementation. *Quantity* includes several measures of the amount and types of services provided. *Quality* refers to adherence to standards of practice by providers of the services. *Implementation of systems* refers to the use of multiple systems to support tobacco treatment: (a) routine identification of tobacco users, (b) documentation of tobacco use status, (c) prompting of brief provider-delivered intervention, (d) referral of tobacco users to TT program for more intensive treatment services, and (e) provider feedback. *Sustainability* is the extent to which services are maintained over time. The following sections describe the measures used for the four dimensions.

Measures

Table 1 summarizes the purpose, measures, and methods used to collect data from the eight sources for this project. Data for this case study are drawn selectively from these sources. These data were collected from 2000 to 2003 using the methods listed in Table 1 including structured interviews, surveys, billing reports, observation by study staff and review of standardized patient sessions. Additional details regarding the methods are reported elsewhere (LaPelle, Zapka, & Ockene, 2006; Pbert, Jolicoeur, Reed, & Gammon, 2007; Zapka et al., 2005). The following sections, describes the measures for the four dimensions. (Insert Table 1 here)

Quantity—Measures included the number of TTSs supported by MTCP and the number of hours worked as reported in the program administrator survey, the proportion of smokers referred to the TTS as reported in the health care provider survey and the volume of services provided (billing data). Providers, administrators and TTSs rated access to TTS services. Providers', administrators', and TTSs' perceptions of potential barriers (minor, moderate or major) to maximizing tobacco treatment services assessed acceptability. Agency administrators and the TTSs rated the challenges of implementing the state program.

Quality—Health care provider competency data consisted of self-report of the proportion of their patients with whom they delivered the 5As intervention. The 5As intervention is recommended by the public service clinical guideline for clinicians treating tobacco dependence and consists of the following steps: Ask about tobacco use, Advise cessation, Assess motivation, Assist with quit attempt, and Arrange follow-up (Fiore et al, 2008). Administrators rated their TTSs competency using a Likert scale of 1-5. In addition, TTS competency was evaluated by two standardized patient assessments in which the TTS was evaluated by objective reviewers on the degree to which they delivered evidence-based tobacco treatment with simulated patients.

Implementation of systems—Program administrators were asked to indicate (yes/no) which program evaluation/quality monitoring activities from an extensive list were conducted as part of the agency's current tobacco treatment program. In addition, a systems assessment checklist was completed by assessing whether record reviews were conducted by the agency in the past year to audit the degree to which tobacco use, referrals and treatment

are documented. TTS and provider surveys also assessed formal systems in place for communication and methods of referral between providers and TTSs.

Sustainability—Key informant interviews were conducted with agencies that had received funding and were subsequently defunded when MTCP lost the majority of its funding in early to mid-2002. These interviews explored the current status of the agencies' tobacco treatment programs to assess the degree of sustainability of services.

Analysis

Preliminary analyses for several data sources are briefly summarized in Table 1. Selected findings are presented here. Individual respondent data are considered for some measures, while other measures use organization as the unit of analysis. The proportion meeting a normative standard is reported for some of these organizational-level measures. Dichotomous outcomes were compared among groups using Fisher's exact tests. Comparisons of mean values among groups were made using Analysis of Variance (F-statistic). Select analyses compared responses across three types of agencies within which the tobacco treatment program was located (Community Health Centers (CHCs), hospitals, and other).

Findings

Quantity—The majority (65%) of 63 program administrators reported having one TTS supported by MTCP, while 19% reported two specialists and 14% reported three or more. A mean of 32 hours per week was reported for the primary TTS. Clinical providers (n=476) reported that they referred most (48%), many (15%) or some (10%) of their patients who were ready to quit to their TTS. Providers offered brief 5A counseling, and TTSs provided individual and group cessation counseling. Nicotine replacement therapy (NRT) was made available. The volume of services provided in the 85 funded organizations for a one-year period is shown in Table 2. The range of units billed was influenced by funds available from MTCP, the size of the organization, and the readiness of providers and smokers for service. Data for units of service were available directly from MTCP as participating organizations were paid based on those reports. Accurate data documenting the number of clients seen, as compared with the units of service were not available. No data on volume of cessation services prior to the MTCP billing requirement are available for comparison purposes.

Eighty-two percent (n=476) of the providers responding to the provider survey (from 71 of the 85 referring sites) reported they had access to a TTS and 58% percent rated their organization's efforts to increase access to tobacco treatment services as very good to excellent. Of the TTSs who completed surveys (71/81, 89%), 87% reported that many, most or all providers were aware of their services and 72% reported many, most or all providers made referrals to them. There were no significant differences in reports between types of sites (i.e., hospitals, community health centers, and other agencies).

Providers, administrators and TTSs all ranked lack of client willingness to quit as a major barrier to maximizing tobacco treatment services. Administrators and TTSs also ranked funding constraints and uncertainty as major barriers and noted that the NRT sliding scale

requirements and MTCP billing procedures were minor challenges. The location of TTS services and the skills and competency of the TTS were not identified as major barriers to maximizing services. Only 11% of the 62 program administrators noted availability of bilingual TTS as a moderate or major barrier. While 87% (58/67) of TTSs reported English as their primary language, no data are available regarding multilingual skill.

Quality—A performance benchmark identified by Centers for Medicaid and Medicare Services (Center for Medicare & Medicaid Services, 2000) for provider competency is documentation of advice by 70% of providers within a given site or agency. With respect to documentation of advice, and all 5As (Ask, Advise, Assess, Assist, and Arrange follow-up), 47% and 42% of the sites respectively met the benchmark. There were no significant differences between site types (i.e., CHCs, hospitals, and other agency types; $p=0.49$ and 0.52 respectively).

The average score for administrators' rating of their TTS' competence was 4.5 (max = 5; median=5) with no differences found between site types ($p=0.15$). TTSs rated their confidence in delivering one-on-one and group counseling (99% and 93%, respectively) and their perceived effectiveness in helping smokers quit (94%) highly, again with no differences in these scores noted between site types ($p=0.58$, 0.36 , and 0.09 , respectively). In a more objective assessment of TTS performance by two standardized patients, TTSs demonstrated only 41% of expected session content in both sessions, but 82% demonstrated the skills in at least one of the interactions. Factors associated with better performance included attending a greater number of tobacco treatment training programs, achieving certification as a TTS, and perceiving more positive support from their agency (See details in Pbert et al. 2007). When observed conducting group counseling sessions, only 6% of TTSs ($n=31$) demonstrated expected session content, with greater coverage associated with more experience in tobacco addiction treatment.

Implementation of systems—A large majority of administrators answered affirmatively for some systems' implementations via quality improvement (QI) activities such as reviewing documentation of tobacco use (79%) and TTS treatment plans (74%), documenting the numbers of clients referred to TTS (80%) and entering (92%) or completing (82%) the program. Other activities such as documenting tobacco use at the end of treatment (53%), and at 6-months (35%), and monitoring internal program evaluation measures (53%), client evaluations of the treatment program (53%) and provider feedback (63%) were implemented. Overall, 68% of administrators rated the quality improvement activities as good or excellent. There were no significant differences by organization type in these QI activities, except that CHCs were least likely to report activities to elicit feedback from clients (36% vs. 65% for hospitals and 71% for other agencies; $p=0.04$). Of the 44 agencies (56%) who responded that record reviews of tobacco use documentation were done in the past year, 13% reported audits of prenatal tobacco use documentation, 17% youth tobacco use, 46% adult use, and 24% use by asthma patients. A high response rate and relatively complete set of data were obtained for systems assessment interviews, but dramatic variation among systems and in type of system and functionality of each across the

diverse organizations precluded development of an overall score that could be applied across multiple sites (Zapka et al. 2005).

Sustainability—Four levels of sustainability were identified 9 months following defunding: (1) none, (2) low (limited services for specific populations provided by non-specialists, no outreach), (3) moderate (only group or phone/web-based services, internal referral system and contract staff), and (4) high (same level of services as when funded, maintain required staff and outreach). Twenty-five agencies (33% of the originally funded programs) were not able to sustain services (level 1); 26 agencies (34%) were at level 2, 21 (27%) were at level 3, and 5 agencies (7%) were high sustainers. Hospitals were more likely than other agency types to sustain services at levels 3 and 4 at 9 months after defunding. Two key sustainability strategies were identified: (1) redefining the scope of services offered to best fit the agency's mission and the needs of the clients, and (2) creative use of resources available and creating a demand for services to ensure that the necessary resources are in place (LaPelle et al., 2006).

Discussion

This case highlights important dimensions of program implementation including the high volume of services provided because of the state funding, and the quality improvement and systems changes prompted by the initiative. Analyses also demonstrated the continued need for improved quality in clinician and TTS performance.

While the case study exemplified potential measurement strategies for statewide programs, it also demonstrated the limitations of comprehensive evaluation because monitoring and evaluation require significant resources. Also, systems and strategies vary over time within and between organizations and on-going longitudinal evaluation design is very difficult. Other states will need to consider priorities among evaluation domains suggested by a variety of models and frameworks and the limitation of this Massachusetts review. For example, an Institute of Medicine (IOM) report (Edington, 2001) identified aims for improvement which reflect health care performance characteristics - safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity. Aday and colleagues emphasize performance domains of effectiveness, efficiency and equity (Aday, Begley, Lairson, & Balkrishnan, 2004). Pronk suggests penetration, implementation, participation, and effectiveness (PIPE) (Pronk, 2003). Donabedian's (Donabedian, 1980) dimensions of care, structure, process and outcome have stood the tests of time as a reminder to broad categories which need monitoring to provide quality care. Glasgow and colleagues stress the performance domains of reach, effectiveness, accountability, institutionalization and maintenance (Glasgow, Vogt, & Boles, 1999). The Center for Disease Control (CDC) has recommended a program evaluation framework emphasizing standards of utility for feasibility, propriety and accuracy (Centers for Disease Control and Prevention, 2007). While it is beyond the scope of this paper to review each of these models they serve as a contextual backdrop for discussion of this case study.

Quantity of services provides a measure of the extent to which services can be provided in the face of financial, organizational, cultural, environmental and personal barriers (Palmer,

Donabedian, & Povar, 1991). State funding of treatment delivery by tobacco treatment specialists across the state could be viewed as increasing both efficiency, or the delivery of a maximum number of comparable units of health care for a given unit of health resources used (Aday et al., 2004), and affordability (Palmer et al., 1991). Funding increases access by lowering treatment costs and increasing availability for more people. Increased availability of services was a major policy premise of MTCP, and the high percentage of CHCs that were funded illustrates MTCP's focus on underserved populations. While no baseline data or estimates of the numbers of smokers in each organization's client base exist, MTCP billing data demonstrate the full range of evidence-based tobacco treatment services was available and delivered. Quantity is also related to providers' referral performance. About one-quarter of providers studied reported referring not even some of their patients who smoke to the TTS. Quality improvement efforts could target increasing the referral rate to ensure all patients have tobacco treatment made available to them.

Acceptability also impacts *quantity of services* provided, as a program must be acceptable to its target audience (Palmer et al., 1991), to providers in order for them to refer patients, and to organizations if they are to sustain them. In Massachusetts the implementing organizations were satisfied with the effectiveness of the state tobacco treatment program as structured although funding issues existed.

Quality standards for cessation services and the implementation of organizational systems strategies (e.g. record reviews that support tobacco treatment) have been emphasized (Kottke et al., 1992; Quinn et al., 2005; Rigotti et al., 2002). "Competency" can refer to the delivery site context as well as its providers and how the site functions as a whole (Palmer et al., 1991). Only about half the organizations in Massachusetts with TTSs reported that tobacco use documentation was audited through record reviews in the year prior to assessment, mostly for the general adult population (i.e. not prenatal, youth, asthma or other high-risk patients). As others have noted (Rigotti, 2002; Solberg et al., 2004; Zapka, Goins, Pbert, & Ockene, 2004), this strategy offers a clear avenue for improvement. Continuous Quality Improvement monitoring was strongest on activities related to or leading to billing (e.g. number of referrals to TTS, number of clients who completed tobacco treatment program).

Although provider self-report of prevention services such as tobacco treatment tends to be elevated when compared to patient report or other objective measures (Block, Hutton, & Johnson, 2000), less than half the Massachusetts sites met a national benchmark for physician provision of advice to quit tobacco use and an even lower percentage met the benchmark for physician delivery of all 5As. Additional work needs to be done on how best to support providers in routinely providing advice and delivering intervention. This is currently the focus of state efforts, improving systems to ensure routine provider intervention. TTS competency in terms of observed session content with standardized patients was lower than self-reported confidence or perceived effectiveness and administrator ratings of TTS competency. Tobacco treatment training had a positive effect on standardized patient assessment, suggesting that tobacco treatment providers can be trained to deliver evidence-based treatment at a competent level.

Sustainability remains a challenge to public health programs. Policy makers, along with organizations and providers, need to consider and plan for increased sustainability given the unavoidable flux in state budgets. Programs that reported moderate to high sustainability of services following defunding were those that proactively and creatively incorporated tobacco treatment into their organizations.

We acknowledge the limitations of this case study. While the data were gathered as part of a large research study, some of our efforts may not be feasible to replicate. About half the data were collected via self-report with no objective, corroborating documentation. We also recognize that the current study did not assess several important domains that are captured in other frameworks, such as *reach*, or the proportion of the eligible target population that participated (Glasgow et al., 1999), also referred to as *penetration* (Pronk, 2003). This dimension represents a rate and therefore requires a denominator, which was unavailable in the case study. We acknowledge the conceptual overlap between domains as well as the application of each domain at various levels (e.g., community, organization and individual). The case study illustrates the continued challenges faced by public health initiatives.

Conclusion

This case study can help other groups planning their own programs as well as identify areas of improvement for an existing program and help inform states' policies and operational decisions about factors in implementation and maintenance of tobacco treatment services in community health settings. It identified four primary areas for consideration in implementing tobacco treatment programs. *Quantity* of services is modified by how accessible they are to providers and patients and how acceptable the state's program structure is to the host organization and its providers. *Quality* reflects provider competency and is closely related to how carefully these services are implemented and monitored. *Implementation of reminder, documentation and quality improvement systems* is needed in order to support the routine identification of tobacco users and delivery of tobacco treatment. Finally, in an era of greater competition for scarce prevention dollars, *sustainability* or adoption over time must be planned for from the outset and leadership encouraged to consider innovative strategies adopted by other organizations.

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Table 1
Data Sources, Purpose and Measures, and Methods and Analyses*

Purpose, Measures		Methods and Analyses
Systems Assessment Checklist	(1) Describe adoption of office system elements recommended by guidelines; (2) Describe the variability in implementation methods; (3) Explore the variability of systems strategies across types of sites; and (4) Compare the systems that organizations have in place for their "model" clinical prevention service with those for tobacco treatment. (Zapka et al., 2005)	<ul style="list-style-type: none"> In-person interview conducted in the community health settingsite with most referrals to TT program during past 6 months. Respondents (one or more/site) selected based on knowledge of documentation of tobacco and other prevention services. Response rate: 97% (83/85 sites). Descriptive statistics computed for each system element; algorithms created for selected elements. Summary scores explored. Bivariate analyses examined variability across sites.
Provider Survey	(1) Identify procedures and systems for cessation services; (2) Identify if and how providers monitor client tobacco use and exposure; (3) Assess the adoption of best practices for cessation (4) Assess perceptions of MTCP statewide media campaign and Center for Tobacco Counseling; (5) Determine respondent demographics; (6) Assess perceived responsibility for addressin tobacco; (7) Assess efficacy of and confidence in counseling; (8) Measure access to TTS and services, referral patterns to and communication with TTS, and barriers to TTS services.	<ul style="list-style-type: none"> TTS-identified community health setting site that produced the most referrals during the past 6 months. Eligibility criteria included providing direct, primary services to adult clients. All eligible providers received survey, except for sites with more than 50 providers where 50% of eligible providers were randomly selected. Response rate: 41% (476/1153)(82/85 sites). Descriptive statistics computed for each survey item.
Program Administrator Survey	Assess knowledge and attitudes regarding MTCP-funded contracts and perceptions of TT services. Rate TTS program and agency's support of the program and identify barriers to implementing the MTCP program.	<ul style="list-style-type: none"> One person for each contract with direct responsibility for management of MTCP TT services and provided administration supervision and/or management asked to complete survey. Response rate: 80% (68/85) Descriptive statistics computed for each survey item.
Tobacco Treatment Specialist Survey	Self-administered, 40-item checklist profiled: (1) Experience, training, and demographics; (2) Tobacco treatment activities (type and venue over past 6 months); (3) Clinical supervision; (4) Perceptions of MTCP support and requirements; (5) Perceptions of agency support; (6) Referral and feedback systems; (7) Self-efficacy for tobacco treatment; (8) Perception of their program's services and barriers to service provision.	<ul style="list-style-type: none"> Surveys hand-delivered to the primary TTS employed by the community health setting. Response rate: 89% (71/81) Descriptive statistics computed for each survey item. Summary scores computed for several items. Selected items/scores included in linear regression analyses with counseling scores.
Group Counseling Checklist	Group counseling skill elements that produced good inter-rater reliability: providing information about the nature of tobacco use, behavioral management strategies, medications for quitting, systematic evaluation of client's status, and facilitation skills.	<ul style="list-style-type: none"> Programs eligible if they offered group counseling billed to MTCP and employed TTS during designated observation block. Trained observer rated 2 groups of 3 participants using checklist. Response rate: 77% (40/52) Overall Counseling Score computed. Bivariate analysis explored variability across sites. Linear regression explored TTS survey factors associated with Overall Counseling Score.
Standardized Patient Assessment	Evaluate delivery of evidence-based tobacco treatment according to national	<ul style="list-style-type: none"> Programs with primary TTS during designated observation block eligible. Two 20-minute SP

Purpose, Measures		Methods and Analyses
	clinical practice guidelines by state's TTSs. Examinee presented with clinical task by simulated patient (patient actor) and evaluated using checklist tailored to content and expected skills of task. (Pbert et al., 2007)	<p>assessments completed in each community health setting. Evaluated performance by: (1) SP scoring (standard assessment), and (2) independent rating of audiotape of counseling interaction (gold standard).</p> <ul style="list-style-type: none"> • Response rate: 79% (64/81) • Content Score, Counseling Score and Overall Counseling Score computed from items. Bivariate analysis explored variability across sites. Linear regression explored TTS survey factors associated with each counseling score
MTCP Billing Data	Document quantity of services paid for by MTCP contract, including number of sessions billed for individual (15, 30, 45, 60 minute) sessions, group sessions, 5A interventions, educational lectures, and NRT units.	<ul style="list-style-type: none"> • Data directly from MTCP every month program had contract with MTCP during study period. • Descriptive statistics computed for each type of service offered.
Key Informant Interviews	Document extent to which tobacco treatment services sustained after termination of state funding. Data collected 11/02 – 1/03. (LaPelle et al., 2006)	<ul style="list-style-type: none"> • Telephone interviews at 3 and 9 months after termination of state funding with staff member directly involved with administration or delivery of TT services. • Response rate: 89.5% (77/86) • Qualitative analysis using grounded theory technique with theoretical coding.

* All data except Key Informant Interviews collected in period 11/01-10/02

Abbreviations: TT, Tobacco treatment; MTCP, Massachusetts Tobacco Control Program; TTS, Tobacco Treatment Specialist; NRT, Nicotine Replacement Therapy

Table 2
Volume of Services Provided by Funded Organizations, November 1, 2001 -October 31, 2002 (N = 82)* (Source: MTCB Billing Data)

Type of billable units	Total units billed to DPH	N (%) Programs billing at least one unit ^{**}	Mean per clinic (SD)	Median per clinic	Range per clinic
Individual Counseling					
15 min	7725	72 (87.8%)	107.3 (191.2)	32.5	1 – 863
30 min	15432	76 (92.7%)	203.1 (200.1)	155	5 – 1140
45 min	5785	64 (78.1%)	90.4 (127.0)	45.5	1 – 627
60 min	15554	75 (91.5%)	207.4 (208.4)	129	3 – 1013
Group Counseling	28335	68 (82.9%)	416.7 (393.8)	314	4 – 1771
Nicotine Patches	34102	79 (96.3%)	431.7 (306.7)	347	3 – 1417
Nicotine Gum (adjunct therapy)	7342.5	64 (78.1%)	114.7 (171.0)	59.5	1 – 1010
Nicotine Gum (primary therapy)	1027.5	53 (64.6%)	19.4 (23.4)	11	1 – 105
5A by clinicians	44632	72 (87.8%)	619.9 (676.5)	333.5	2 – 3177

Description of units:

Individual Counseling: 1 unit = 1 session conducted for the designated amount of time (15, 30, 45, or 60 minutes). This does not track the number of unique individuals seen.

Group Counseling: 1 unit = 1 participant in one group counseling session (i.e., 4 sessions with 5 participants each = 20 units). This does not track the number of unique individuals who participated in group counseling sessions.

Nicotine Patches: 1 unit = 7 day supply of nicotine patches (21, 14 or 7 mg)

Nicotine Gum (for adjunct therapy) = 14 pieces of gum (2 or 4 mg)

Nicotine Gum (for primary therapy) = 98 pieces of gum (2 or 4 mg)

5A: 1 unit = documentation of an initial brief intervention by a clinician (e.g. physician, nurse practitioner, physician assistant) to an individual.

* 3 programs submitted combined billing to MTCB but in all other ways functioned as independent programs.

** Calculations include only number of programs billing at least one unit. Programs did not all bill for all possible types of billable units (e.g., some did not bill for 5A by clinicians). In order to avoid skewed results all programs listing 0 as a number of units were not included in the calculations.