SUPPLEMENT

# Increasing reach of quitline services in a US state with comprehensive tobacco treatment

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**Objective:** The population reach of tobacco quitlines is an important measure of treatment seeking and penetration of services. Maine offers an opportunity to examine temporal changes in quitline reach and referral sources in the context of a comprehensive tobacco treatment programme. The impact of a $1.00 cigarette tax increase is also examined.

**Methods:** This is a descriptive analysis of Maine Tobacco Helpline call volume September 2001 to December 2006. Annual reach was estimated using a cross sectional state surveillance survey. Weekly call volume was examined during 2005, a year of marked changes in tobacco taxes and quitline resources. Referral patterns were analysed yearly.

**Results:** Maine's Tobacco Helpline observed more than a threefold increase in population reach during a four year interval, from 1.9% to over 6% per year. Calls increased substantially in 2005, concurrent with added hours of operation and a rise in the cigarette tax. Over time, callers increasingly reported hearing about the quitline from health professionals, from 10% in 2001 to 38% in 2006.

**Conclusions:** Tobacco treatment programmes offering free nicotine therapy and professional medical education can drive quitline utilisation over time. Call volume can also be affected by quitline operational and policy changes that promote the reduction of tobacco use.

Telephonic counselling, or quitlines, have demonstrated both efficacy and real world effectiveness.[1 2] Based on these findings, the *Guideline to Community Preventive Services: Tobacco Use Prevention and Control* recommends quitline services be included as a component of a comprehensive state tobacco control programme.[3] To achieve the best outcomes, quitlines must demonstrate both effectiveness and reach, or population based utilisation by smokers in the region served.

Zhu and colleagues showed increasing use of the California Helpline over seven years, with callers learning about the quitline from media as well as non-media sources.[4] The overall quitline use among adult smokers, however, was less than 1% per year. Paid media and/or free nicotine replacement therapy (NRT) drives quitline demand. An *et al* found that offering NRT through the Minnesota Quitline led to a substantial increase in call volume.[5] In that study, quitline reach was less than 2% in a year. The New York Quitline was able to reach 2.9% of the state's smokers (smoking 10+ cigarettes daily) by promoting a NRT ''starter kit,'' with a concomitant rise in quit outcomes observed.[6]

While no US state quitlines appear to have a population reach over 3% per year, higher smoker penetration has been seen outside the United States. In Australia and the United Kingdom, media campaigns resulted in quitline use of 3.6% and 4.2% of adult smokers, respectively, during one year.[7 8] Recently, methods less dependent on media and NRT have been developed, such as integrating tobacco treatment into clinical care using a quitline fax referral.[9] Finally, policies such as smoking bans have been shown to boost smoker interest in quitting and to increase quitline call volume.[10]

The Maine Tobacco Helpline is delivered in the context a comprehensive treatment programme, including free NRT and widespread education of health professionals. This paper describes trends in population reach and referral source of the helpline over time. We also present quitline utilisation before, and after, a large increase in the state cigarette tax.

## METHODS

### Maine treatment programme

The state of Maine has been a national leader in tobacco control, earmarking a high proportion of Master Settlement Agreement (MSA) revenue to support prevention and treatment.[11] The Partnership for A Tobacco-Free Maine (PTM), the state's tobacco prevention and control programme, began in 1997 with media and community programming. In 2001, PTM launched development of a comprehensive treatment initiative, including a quitline. In 2002, a free nicotine therapy programme and clinical outreach to health professionals statewide were implemented.

The Maine Tobacco HelpLine offers multiple session behavioural counselling to any resident.[12] Services are provided by tobacco specialists at the Center for Tobacco Independence (Portland, Maine), in collaboration with Free & Clear, Inc (Seattle, Washington). Nicotine patches and gum became available in September 2002 to callers without insurance or pharmacy benefits for NRT. Eligible callers include those ready to quit, those aged 18 and older, and non-pregnant women. Maine Medicaid beneficiaries have coverage for nicotine therapy with a prescription and are not eligible for NRT through the helpline. Smokers authorised to receive NRT obtain 28 days of medication at a pharmacy of their choice; an additional month of therapy is accessed by having a subsequent telephone counselling session. All tobacco users are encouraged to receive a total of four counselling sessions, and all are mailed self help materials.

A rigorous medical education programme began in 2002. Full day conferences have been conducted across the state, aimed at increasing competencies to address tobacco use during clinical encounters. In November 2002, a small cadre of trained staff began conducting in-office education (academic detailing). This

**Abbreviations:** BRFFS, Behavioral Risk Factor Surveillance Survey; MSA, Master Settlement Agreement; NRT, nicotine replacement therapy; PTM, Partnership for A Tobacco-Free Maine

clinical outreach targets a wide variety of health professionals, including medical, mental health, dental, and complementary and alternative providers and office staff. Sessions focus on evidence for tobacco treatment and encourage smokers to call the HelpLine. From 2002–6, a total of 1656 professionals have attended training conferences, and 617 clinical offices have been visited.

PTM has conducted tobacco control media campaigns intermittently using print, television, and radio since 2001, averaging two campaigns a year lasting 6–12 weeks. Many, but not all, advertisements ''tag'' the HelpLine number at the end of the message. Only one campaign specifically promoted the HelpLine. Using testimonials from smokers who quit with HelpLine assistance, these ads ran from July to September 2003. Of note, free NRT has never been advertised or promoted in any media campaign. Health professionals, however, are apprised of available treatment services and encouraged to inform smokers about the HelpLine and free NRT.

Important operational and policy changes occurred in 2005. In February 2005, to meet increasing HelpLine demand and connect callers to a specialist, the hours of live operation were expanded from 52 hours to 112 hours per week. Secondly, the cigarette tax increased from $1.00 to $2.00 per pack, effective from 19 September 2005.

### Analysis

Trends in HelpLine use were examined from programme inception in September 2001 through December 2006. Callers were classified as tobacco users, proxy smokers (friends or family), or individuals requesting information. Annual population reach of the HelpLine was calculated as the number of tobacco users calling the HelpLine each year divided by the total number of smokers in the state. The total number of adult smokers statewide was estimated using the 2003–4 Maine Adult Tobacco Survey.[13] This telephone survey of 5332 Maine residents aged 18 and older interviewed between 1 August 2003 and 15 July 2004 included questions from national instruments such as the Behavioral Risk Factor Surveillance Survey (BRFFS), the US census, and the National Health Interview Survey. Data were weighted to adjust for probability of selection, non-response, and to match the state profile based on sex, age, and area of residence. Current smokers were defined as having smoked at least 100 lifetime cigarettes and reported smoking every day or some days. Based on this survey, approximately 207 660 adults in Maine were current smokers (21% of adults) at the mid-point of our 2001–6 study interval.

All callers to the HelpLine were asked how they heard about the programme, and a single response was recorded for each caller. The following categories of ''how heard about'' were tabulated for unique callers each year: health professional, media, family/friend, past caller, and other (brochure, employer, ''don't remember'').

Since the increase in quitline hours and cigarette tax occurring during 2005 were anticipated to influence quitline use, HelpLine call volume was described weekly for the 2005 calendar year.

## RESULTS

In over five years of operation, the Maine HelpLine observed steadily increasing demand for services. Monthly call volumes increased from 141 callers in September 2001 to 1130 callers in December 2005, with a peak monthly call volume of 2787 in September 2005. On average, 88% of callers were tobacco users, ranging from 79% of callers in 2001 to 92% of callers in 2004. During any given year, fewer than 90 callers were younger than 18 years of age.

The annual population reach of the HelpLine among adult smokers statewide was 1.9% in 2002, the first full year of operation (table 1). Reach increased to almost 3% following the first year of the medical education programme, and rose to 6.6% in 2005, the year of the cigarette tax increase. During the first half of 2005, before any consideration of a state tax increase, the HelpLine had achieved a 5% annualised reach (data not shown). In 2006, the utilisation of the HelpLine has remained higher than during pre-tax years.

Where callers learn about the HelpLine has changed over time (table 1). In the first year of the HelpLine, media promotion had the prominent role. As the clinical outreach programme developed, callers are more likely to report hearing about the helpline from a health professional. In addition, the role of family and friends in disseminating information about the HelpLine takes on greater dominance. Finally, a small but important number of smokers are ''recycling'' and calling the HelpLine again for assistance with quitting.

Weekly changes in 2005 call volume are shown in figure 1. After quitline hours of operation increased, call volume rose from a mean of 161 callers per week to 271 per week. Two weeks before the doubling of the cigarette tax, volume amplified greatly; this increase was sustained for an additional four weeks. HelpLine hours were subsequently restricted (from 112 to 40 hours/week) following the tax related surge in calls, because the programme budget was unable to support a sustained supply of services.

**Table 1** Annual population reach of the Maine Tobacco HelpLine, and how callers heard about the service—2001 to 2006

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | 2001* | 2002 | 2003 | 2004 | 2005 | 2006 |
| Smoker population reach, by year† (%) | 0.8% | 1.9% | 2.9% | 3.4% | 6.6% | 4.2% |
| Tobacco users assisted by HelpLine (n) | 529 | 4019 | 6077 | 7114 | 13673 | 8739 |
| How heard about (% for each year): | | | | | | |
| Healthcare professional | 10% | 21% | 28% | 30% | 27% | 38% |
| Media (TV, radio, print ads) | 69% | 53% | 35% | 26% | 24% | 21% |
| Family or friend | 6% | 12% | 25% | 27% | 26% | 22% |
| Past caller | 3% | 1% | 4% | 9% | 9% | 2% |
| Other | 12% | 14% | 8% | 8% | 14% | 17% |

*Reach for 2001 is annualised based on operation from September 2001–December 2001.
†Population reach is the percentage of adult smokers in the state provided Helpline services each year.
Treatment Initiative chronology: Helpline began August 2001; NRT available September 2002; clinical outreach began November 2002. Quitline hours of operation expanded February 2005. Cigarette tax doubled ($1.00 to $2.00) September 2005.

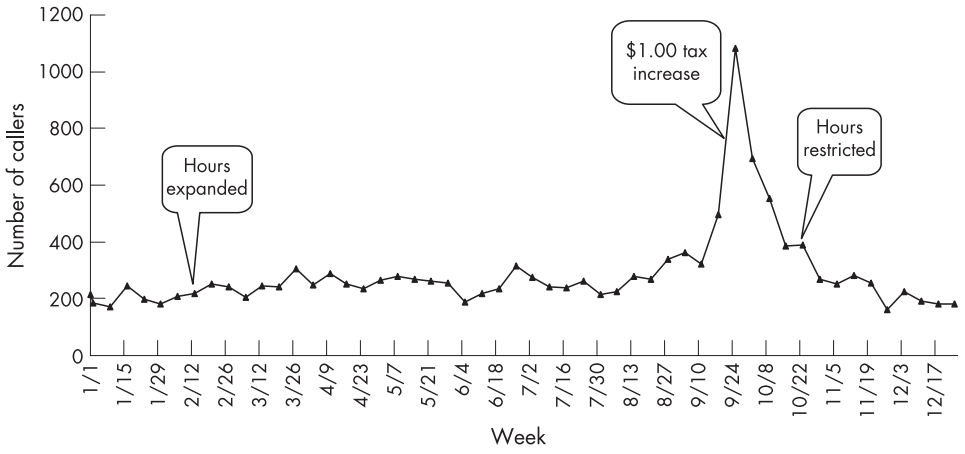


**Figure 1** Number of callers to the Maine Tobacco HelpLine per week, January to December 2005.

## DISCUSSION

The Maine Tobacco HelpLine appears to achieve the highest population reach for a US quitline. Results suggest that the comprehensive nature of Maine's treatment efforts, including free NRT and continuing medical education, has been relatively successful in generating sustained quitline utilisation by adult smokers. In addition, treatment services delivered in the context of policy advocacy, such as tax increases, also work together to drive quitline utilisation.

Several study limitations warrant discussion. The denominator used for the total number of adult smokers in the state was at the mid-point of the study interval and may not be accurate for other years. If smoking rates declined after 2003, as suggested by BRFSS data, then we have underestimated the reach of the HelpLine. Secondly, call volume data are cross sectional and represent unique individuals each year, but not unique from year to year. Quitlines experience repeat callers; future studies on quitline use should describe the degree to which this occurs. Thirdly, this observational study cannot assess how specific programme elements affect treatment seeking. By examining annual quitline utilisation over years, however, patterns in programme development and quitline use can start to emerge. We can only theorise that access to free NRT may work synergistically with health professional training to drive HelpLine use. Our data on how callers heard about the HelpLine show a substantial rise in health provider messaging. Yet smokers learn about the quitline from a variety of sources. Indeed, the question, ''how did you hear about the HelpLine'' may be an insufficient method to measure the cumulative impact of multiple promotional strategies.

Maintaining the quality and breadth of tobacco treatment services that reach a substantial proportion of smokers requires sufficient funding. Maine's cigarette tax increase resulted in a surge in HelpLine calls, straining the budget to maintain services. As a result, hours of operation were reduced and the clinical outreach programme was suspended. Maine continues to struggle with its own success, including strategies to maintain all components of its treatment initiative: multiple session telephone counselling, free NRT, and educating health professionals. With legislative support, clinical outreach was re-established in 2006.

As quitlines gain credibility and permanence in society, it is important to measure not only their programme impact, or effectiveness of services, but also population impact, or reach across tobacco users targeted for such services. This study documents the success of the Maine Tobacco HelpLine in reaching an increasing proportion of adult smokers in the state over five years of operation. The experience of Maine provides evidence that a comprehensive tobacco control programme can drive population reach of a quitline.

### What this study adds

- While best practice tobacco treatment programmes include quitlines and access to medication therapy, little is known about population reach of these services over time.
- The Maine Tobacco HelpLine shows the highest sustained population reach for a quitline in the US. The experience of Maine provides evidence that a comprehensive tobacco control programme can drive quitline utilisation. Quitline operational changes and an increase in the cigarette tax also had a positive impact on quitline use.

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