ARRA Quitline Impact Report: Evaluating the Addition of the Online Cessation Service

A Report Prepared for the Alabama Department of Public Health

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Executive Summary

The Institute for Social Science Research examined the impact of the addition of the online cessation service (Quitnow) to Alabama's telephone Quitline and the additional promotional activities associated with the online service. Key findings of this impact report include the following:

Program Activities and Costs

The program intervention conducted by the Alabama Department of Public Health involved the following components:

- The creation of the Quitnow website which became available in July of 2010
- Earned and paid media campaigns to promote the Quitline/Quitnow cessation services
- A program budget of $830,665

Promotional Media

Based on the increase in the number of intakes associated with the media campaigns and the source information gathered from the intake interviews, the promotional media efforts that appear to have been most effective in drawing attention to the Alabama Quitline/Quitnow services were the following:

- The press releases distributed by ADPH which announced the kick-off and the one-year anniversary of the Quitnow service
- The paid newspaper post-it note campaign in November of 2011
- The al.com paid online advertising campaign in January of 2012
- The paid newspaper campaign in January of 2012

Impact of the Program

During the period of the ARRA program intervention (July 2010 to January 2012), usage of the Alabama Quitline/Quitnow cessation services increased from the baseline period (July 2008 to January 2010) by the following amounts:

- Intakes completed at the Quitline/Quitnow cessation services increased by 44%, from 6,998 to 10,061[*]
- Individuals in treatment at the Quitline/Quitnow cessation services increased by 79%, from 3,084 to 5,535[*]

[*] These include total increases at the Quitline (telephone) and Quitnow (online) services attributed to the ARRA program intervention.

The addition of the online service to the Alabama Quitline and the promotional activities associated with the ARRA program resulted in the following estimated impacts:

- 838 individuals who quit smoking
- $1,009,790 in short-term cost savings due to the prevention of acute myocardial infarction and stroke
    - $213,540 in savings by individuals who have government health insurance
    - $470,597 in savings by individuals who have private or other health insurance
    - $325,654 in savings by individuals who have do not have health insurance
- $179,125 in short-term net cost savings (*cost savings – program expenditures*)

Comparing the Quitline Telephone Service with the Quitnow Online Service

Data from the intake surveys and seven month follow-up surveys show significant differences in the demographic characteristics of the Alabama residents who use the Quitline service compared with the users of the Quitnow service:

- While white residents make up a greater percentage of the users of both telephone and web services, they make up a larger percentage of the web users (87%) than they do of the telephone users (70%).
- The online service is used more frequently by young and mid-aged residents (<18, 19-29, 30-39, 40-49) while the telephone service is used more frequently by older residents (50-59, 60-69, >69).
- The online service is used more frequently by residents with higher levels of education (some college, college degree) while the telephone service is used more frequently by residents with lower levels of education (<HS diploma).

The performance of the Quitline and Quitnow cessation services can be compared by the levels of user satisfaction, the quit rate among their users, their intake to treatment ratios, and their cost-per-quit.

- Data from the follow-up surveys reveal higher levels of user satisfaction for users of the online service than for users of the telephone service.
- Quit rates for the users of the online service (32%) were lower during the program period than quit rates for users of the telephone service (40%).
- A higher percentage of individuals who completed web intakes (85%) went on to receive treatment than those individuals who completed telephone intakes (44%).
- Between July 2010 and June 2011, the Quitnow service had a lower cost per quit than the Quitline service at $349 and $458 per quit, respectively.[*]

[*] This includes operating costs and nicotine replacement therapy costs and does not include any media costs.

Background

Tobacco use is one of the most preventable causes of death and disease in the United States.[1] The health and economic consequences of tobacco use have been well documented nationally as well as in the state of Alabama. Tobacco use drastically increases the risk of disease and is associated with medical conditions that cause death, including cancer, cardiovascular disease, respiratory disease, and perinatal conditions.[2] The Campaign for Tobacco-Free Kids estimates that in Alabama, 7,500 adults die each year from smoking.[3] Furthermore, the Centers for Disease Control and Prevention (CDC) reports that in the U.S., for every person who dies from a smoking-related disease, there are approximately 20 people living with a smoking-attributable illness.[4]

The consequences of smoking also reach beyond those who smoke, causing heart disease and lung cancer among the non-smoking community. A recent report from the Surgeon General confirms previous findings that there is no safe level of exposure to tobacco smoke.[5]

The economic cost of medical treatment for individuals who are affected by tobacco-related illness is substantial. It is estimated that in 2010, excess adult medical care expenditures resulting from smoking amounted to $1.66 billion in Alabama.[6] This figure is the estimate only for direct medical expenditures attributed to smokers and does not include economic costs such as productivity losses due to premature death and smoking-related illness or the medical or productivity losses resulting from secondhand smoke exposure.

Research studies provide evidence that tobacco-dependence treatment is highly cost-effective and can be cost saving.[7] Since the first toll-free tobacco cessation service was developed in the early 1980's, telephone quitline services have become a popular form of cessation treatment which have been adopted and institutionalized by state governments nationwide. Today, residents of all 50 states, Puerto Rico, Guam, and the District of Columbia have access to quitline services. Telephone quitlines have been shown to be effective through clinical trials and were promoted through the *U.S. Public Health Services Clinical Practice Guideline: Treating Tobacco Use and Dependence*.[8] In addition to offering telephone-based cessation services, some states have opted to expand their quitline services by offering online cessation services. While the evidence base for web-based service is still developing, the North American Quitline Consortium (NAQC) reported in 2009 that results of a meta-analysis show sufficient clinical evidence to support the use of online cessation services for adults.[9]

In an effort to serve a greater number of the tobacco users in the State of Alabama, the Alabama Department of Public Health (ADPH) added an online component to its telephone quitline service that became available in July 2010. This additional service was funded through the American Reinvestment and Recovery Act (ARRA). ADPH promoted the additional cessation service through earned and paid media efforts also funded from the ARRA grant.

Scope of the Impact Report

ADPH contracted with The Institute for Social Science Research at The University of Alabama to assess the impact of the online cessation service and promotional activities funded by the ARRA grant. The purpose of this report is to evaluate ADPH's program activities and the effect this program intervention has had on expanding the usage of the Quitline services. This will be done by examining individual promotional activities in relation to usage of the Quitline/Quitnow cessation services as well as estimating the short-term cost savings of the program.

For the purposes of this report, the addition of the online cessation service (Quitnow service) to the Alabama Quitline and the promotional activities that were funded by the ARRA grant will be referred to as the ARRA program intervention. Although the official grant period during which ADPH was funded with the ARRA grant ran from February 4, 2010 to February 3, 2012, the online cessation service had to be developed and did not become available to users until July of 2010, thus the ARRA program intervention period referred to in this report is the 19-month period from July 2010 through January 2012.

Overview of the ARRA Program Intervention

In February of 2010, the Alabama Department of Public Health (ADPH) was selected by the CDC to receive a grant funded through the American Reinvestment and Recovery Act (ARRA) to expand the cessation services offered by the Alabama Quitline. ADPH's Tobacco Prevention and Control Program (TPCP) aimed to increase the number of tobacco users served in Alabama by offering cessation services on the World Wide Web in addition to the telephone-based service already available. Furthermore, TPCP planned to use grant funds to promote the Quitline/Quitnow cessation services through paid media advertisements and Quitline/Quitnow materials. Plans were also made for ARRA funding to support earned media campaigns.

Quitnow Website

A key component of the expansion of Alabama's cessation services involved a new Quitnow website which would serve as a platform to host online cessation services. TPCP contracted with Information and Quality Healthcare (IQH), an independent, Mississippi, not-for-profit corporation, to establish this website and provide online cessation services for Alabama residents. The contract with IQH, funded by the ARRA grant, started on April 8, 2010 and extended through February 3, 2012. IQH developed the alabamaquitnow.com website that became available late in July of 2010, which provides tobacco facts, local resources, and a sign-in page through which Alabama residents can register for free cessation services. The website is available 24 hours a day, seven days a week, and members can chat with other users who are quitting at the same time. Once registered, participants can receive master's level counseling in conjunction with a personalized quit plan and four weeks of nicotine replacement therapy patches, for those who are medically eligible. Online counselors are available from 8 a.m. to 8 p.m. Monday through Friday, and on Saturday from 9 a.m. to 5:30 p.m.

Summary statistics of the visitors to the Quitnow website from August 2010 to January 2012 are displayed in Table 1. In August of 2010, the first full month that the website was available, there were 1,292 unique visitors to the website. The website experienced several peaks in the number of unique visitors including a peak in January of 2011 (1,481), in August of 2011 (1,326), and the largest in January of 2012 (12,316). The increases in the number of visitors to the website are associated with holidays and with efforts to promote the Quitline/Quitnow cessation services.

Table 1. Online visits to the Quitnow website

Month	Unique visitors	Number of visits	Pages visited
Aug-10	1,292	2,791	29,386
Sep-10	813	2,080	14,202
Oct-10	673	1,369	10,104
Nov-10	643	1,260	11,587
Dec-10	749	1,425	13,230
Jan-11	1,481	2,966	24,297
Feb-11	1,059	2,296	15,593
Mar-11	1,020	2,183	15,531
Apr-11	955	1,756	12,090
May-11	920	1,920	13,275
Jun-11	872	1,615	12,845
Jul-11	877	1,692	12,622
Aug-11	1,326	2,633	19,858
Sep-11	1,192	2,224	15,283
Oct-11	1,249	2,434	18,871
Nov-11	1,541	2,945	22,778
Dec-11	1,652	2,896	18,452
Jan-12	12,316	17,122	66,882

Promotional Media

As part of the effort to bolster Quitline usage and promote the new Quitnow cessation service, $387,786 were spent on the advertising and other promotional activities outlined in this section. According to the CDC, demand for quitline services is largely a function of the extent to which they are promoted.[10] A brief description of each of the campaigns funded under this program is outlined below.

- In the first half of 2011, from January 24 to June 11, ADPH spent $15,300 on a statewide radio campaign that focused on the dangers of secondhand smoke and promoted smoke-free businesses and the Alabama Quitline. The campaign included an advertisement which featured a local restaurant owner from Montgomery, talking about his smoke-free restaurant.
- From April 11 to May 15, 2011, ADPH made its largest media purchase, spending $232,245 on a television commercial which was part of a statewide education campaign to inform the public about the dangers of secondhand smoke for children. This advertisement portrayed the dangers of secondhand smoke for children, with the tagline, “When you smoke around your kids, it’s like they’re smoking.”
- During the summer of 2011, ADPH purchased spots to advertise the Quitnow service in two magazines, *The Alabama Nurse* and *The Scope of Family Medicine*. ADPH paid $2,557.70 for the advertisement in *The Alabama Nurse* which went out in June and has a circulation of 76,000. The advertisement in *The Scope of Family Medicine* cost $1,000 and went out in July with a circulation of 4,500.

- On November 16, 2011, ADPH conducted a statewide newspaper post-it-note campaign and included a Quitline/Quitnow advertisement in major newspapers throughout the state. The newspapers in which ADPH advertised had a total circulation of 393,266 and the cost of the campaign was $46,854. This advertisement was placed the day before the Great American Smokeout, an annual cessation campaign sponsored by the American Cancer Society.
- On five Sundays in January of 2012, ADPH included Quitline/Quitnow advertisements in newspapers statewide spending $9,829. The total circulation for the newspapers included in this campaign was 4.5 million.
- In January of 2012, ADPH's vendor, IQH, purchased an $80,000 online ad campaign to promote the Quitline/Quitnow cessation services on the state's most popular online news site, al.com.

Earned media also played a significant part in ADPH's activities promoting the Quitline/Quitnow cessation services. These earned media activities began in August 2010, with the distribution of a press release to all newspapers in the state, announcing the new Quitnow service. Earned media campaigns were also pursued by the local area tobacco coordinators in December and January during both years of the grant period to promote Quitline/Quitnow services in support of a New Year's resolution to quit smoking.

Program Expenditures

ADPH budgeted $830,665 in ARRA grant funds in an effort to expand and promote Alabama cessation services between May of 2010 and January of 2012. The ARRA program led to the creation of one new job within TPCP (i.e., Health Services Administrator I: Cessation Services Program Manager), which was partially supported by the grant.

Table 2. ADPH budget for the ARRA grant

Expenditure	2010	2011	2012	Total
Salaries	$10,496.00	$18,368.00	$7,939.00	$36,803.00
Fringes	$6,022.55	$9,985.00	$3,287.00	$19,294.55
Travel in-state	$0.00	$17.00	$0.00	$17.00
Travel out-of-state	$0.00	$884.00	$251.00	$1,135.00
Rent	$0.00	$0.00	$0.00	$0.00
Motor pool	$0.00	$284.00	$236.00	$520.00
Professional services*	$0.00	$251,010.00	$56,684.00	$307,694.00
Supplies	$0.00	$10,814.00	$14,792.00	$25,606.00
Indirect	$2,015.23	$3,527.00	$1,525.00	$7,067.23
Training	$0.00	$0.00	$0.00	$0.00
Grants†	$68,660.00	$177,960.00	$185,908.00	$432,528.00
Total	$87,193.78	$472,849.00	$270,622.00	$830,664.78

* Includes payments for media contracts.
† Includes payments for the contract with IQH to develop and implement the online service, $5,000 grants for each geographic public health area, and contracts with The University of Alabama and UAB.

Impact of the Program

Effects of Specific Promotional Activities

The effects of specific promotional activities on the frequency of Quitline/Quitnow usage can be examined by comparing the implementation of program activities with the increased intakes that are chronologically associated with these activities and with the sources of information reported in the intake surveys. Figure 1 in the appendix shows the implementation of promotional activities plotted graphically against the weekly intakes completed at the Quitline/Quitnow services.

Press release announcing online cessation service

Following the press release announcing the Quitnow cessation service in early August 2010, there was a notable increase in both telephone and online intakes. Total intakes increased from 68 in the last week of July to 244 in the second week of August. ADPH distributed the press release announcing the Quitnow service to newspapers statewide. Data from the intake surveys reveal that, during the month of August, the number of individuals claiming that they heard about the Quitline/Quitnow services from the newspaper increased by over 500% compared to the monthly average. This evidence linking the intake increase to news sources supports the conclusion that the news generated by this press release led to greater utilization of both telephone and online cessation services.

Earned media during the New Year's holidays

Figure 1 reveals peaks in Quitline/Quitnow intakes that were associated with program promotional activities that occurred during the New Year's holidays of 2011 and 2012. Because spikes in usage generally occur at this time of year, it is difficult to assess the number of users who contacted the Quitline/Quitnow services based on these program efforts. It is worth noting, however, that earned media campaigns to promote the Quitline/Quitnow services were conducted during the New Year's season both in 2011 and in 2012.

Statewide radio campaign

Because the statewide radio campaign was implemented during the first six months of 2011 (January 24 to June 11), any increases in intakes that may have been notable in Figure 1 could have been offset by the downward seasonal trend in intakes that occurs after the New Year's holiday. Data from the intake surveys reveal an increase of individuals who reported hearing about the Quitline/Quitnow services on the radio in January (22 individuals) and February (18 individuals). However, during the rest of the radio campaign there was an average of only 6 individuals per month who reported hearing about the Quitline/Quitnow services from the radio.

Paid statewide TV campaign

In April of 2011, there was a small increase followed by a drop in intakes as noted in Figure 1. This period corresponds with the paid statewide TV campaign (April 11 to May 15), which was part of a statewide education campaign to inform the public about the dangers of secondhand smoke on children. Data from the intake surveys suggest that part of this minor increase may have been

associated with the TV campaign, but the data do not indicate that this campaign had a substantial effect on Quitline/Quitnow usage.

Advertising in the Alabama Nurse magazine

In mid-June of 2011, another notable increase in telephone intakes occurred; total intakes rose from 75 during the second week in June to 153 in the fourth week. This increase corresponds chronologically with advertising that was paid for in the *Alabama Nurse* magazine in June. While data from the intake surveys show there was an increase in the number of individuals who claimed to have heard about the Quitline/Quitnow services from a health professional (indicating that the ad in the *Alabama Nurse* magazine may have had an effect on Quitline/Quitnow usage), there was also an increase in individuals who reported hearing about the Quitline/Quitnow services from TV commercials, newspapers, and web sites during this week.

Press release celebrating one year of service

In early August of 2011, a spike in web intakes followed a press release that celebrated one year of online cessation service offered through the Quitnow website. Data from intake surveys show that these new users heard about the Quitnow service largely from family and friends and on Facebook. While this source of information does not directly link the press release to the users, since it is unknown where the friends and family learned about the Quitnow service, the possibility remains that the friends and family who directed the users to the online service learned about it through the press release.

Post-it-note newspaper campaign

In mid-November of 2011, a substantial increase in intakes occurred which was associated chronologically with the post-it-note newspaper campaign. Intakes rose from 149 during the first week of November to 272 in the third week of the month. Source data from the intake surveys provide strong evidence that this increase came as a result of the post-it-note campaign. Among the 272 individuals who completed an intake during the third week in November, 38 people said that they found out about the Quitline/Quitnow services from the ‘newspaper post-it-note.’ Additionally, there were large increases in the average percentage of individuals who claimed to hear about the Quitline/Quitnow services from newspapers compared to other months during the year.

AL.com paid online advertising campaign

In January of 2012, a large increase in intakes were completed through the Quitline/Quitnow services and a sustained increase in online intakes occurred throughout the month. This increase was associated not only with the New Year’s holiday and the earned media efforts previously mentioned, but also with a paid advertising campaign for the Quitline/Quitnow services, conducted by IQH. This campaign ran on Alabama’s most popular online news site, al.com. Statistics collected on visitors to the alabamaquitnow.com website reveal that there were 12,316 unique visitors to the website during January 2012, a substantial increase from January of 2011, which had 1,481 unique visitors. A partial list of the websites that linked visitors to the alabamaquitnow.com site shows that over 4,000 of the visitors arrived at the site through a link from al.com.

Statewide newspaper advertising campaign

In January of 2012, ADPH also conducted a statewide newspaper campaign, placing advertisements for the Quitline/Quitnow services in newspapers throughout the state on each of the five Sundays during the month. Intake surveys from January show large increases in the number of users of the telephone and online services who cited the newspaper as the source of information about the Quitline/Quitnow services, evidence that the increased intakes were at least partially due to the newspaper advertising campaign.

Change in the Number of Intakes

Increases in demand or interest in the cessation services offered by the state may be measured by examining the change in intakes completed at the Quitline/Quitnow services. According to the CDC, the change in demand in quitline services is a function of the extent to which they are promoted.[11] Thus, examining the change in intake data can serve as an indication of how well the Quitline/Quitnow services are being promoted. An intake is a standard NAQC-recommended survey that is typically completed by users of the Quitline/Quitnow services at their first contact either by telephone or online. The intake survey assesses the reason for the contact and asks other questions of the individual including how they heard about the Quitline/Quitnow services, whether they use tobacco, and other demographic questions. Intakes can be a more useful measure of demand for the cessation services than call volume because the number of intakes does not include miscellaneous calls, wrong numbers, and failed contacts.

In order to calculate the change in the number of intakes completed at the Quitline/Quitnow services during the period of the ARRA program intervention, intake data for the 19-month period from July 2008 through January 2010 were used to establish a baseline for the number of intakes that could be expected during this time. By taking data from the corresponding 19-month period preceding the program intervention, we are able to control for the effects of seasonal fluctuation on the data. Baseline data show that 6,998 telephone intakes were completed at the Quitline/Quitnow services during the 19-month period between July 2008 and January 2010.

Data for the 19-month period of the program intervention, from July 2010 to January 2012, show that 8,677 telephone intakes and 2,435 web intakes were completed, for a total of 11,112 intakes. Table 3 demonstrates that this is a 59% increase in intakes completed during the ARRA intervention period over those completed during the baseline period.

Table 3. Statewide increase in the number of intakes from baseline to ARRA program period

19-month period	Intakes		
	Telephone	Web	Total
July 2008 to Jan 2010 (Baseline)	6,998	0	6,998
July 2010 to Jan 2012 (ARRA Intervention)	8,677	2,435	11,112
# Increase	1,679	2,435	4,114
% Increase	24%	NA	59%

It should be noted that during the ARRA program intervention there were two other major tobacco prevention programs taking place in Alabama, one in Jefferson County and the other in Mobile County. These programs were funded by the CDC and were part of the Communities Putting Prevention to Work initiative (CPPW), which had a goal of reducing exposure to secondhand smoke. Additional details on these programs can be found in the limitations section of this report. Because the CPPW programs also engaged in significant tobacco prevention promotional activities, we have examined the increases in intakes in these counties compared to all other counties statewide and found that the increase in Jefferson and Mobile Counties was substantially higher than in the rest of the state. Table 4 reveals that statewide (excluding Jefferson and Mobile Counties), the increase in intakes during the program intervention was 44% over the baseline, while the increase in Jefferson and Mobile Counties was 126% and 123%, respectively, over the baseline during the same period. We assume that without the CPPW programs in Jefferson and Mobile Counties, the increase in intakes in these counties would have been similar to the increase in the rest of the state. Thus, applying the average increase in the state (44%) to Jefferson and Mobile Counties, we estimate that there were an additional 3,063 intakes completed through the Quitline/Quitnow services due to the ARRA intervention, while an additional 1,051 intakes were attributable to the CPPW program. See Table 4 for details.

Table 4. Increase in the number of intakes attributed to the ARRA and CPPW programs

Geographic area	Total increase in intakes		Increase attributed to ARRA		Increase attributed to CPPW	
	#	%	#	%	#	%
State*	2,496	44%	2,496	44%	0	0%
Jefferson County	927	126%	321	44%	606	83%
Mobile County	691	123%	246	44%	445	79%
Total	4,114	n/a	3,063	n/a	1,051	n/a

*Excluding Jefferson and Mobile Counties

The increase in intakes due to the ARRA program is displayed in Table 5 by location and type of service. The statewide increase (excluding Jefferson and Mobile Counties) in intakes by type of service was calculated directly from the increase in intakes during the program period above those during the baseline. However, the increases by type of service in Jefferson and Mobile Counties were derived by dividing the 44% increase in intakes in these counties proportionally, using the ratio of telephone/web intakes in their respective counties during the program period. Thus we find an estimated increase of 1,049 intakes completed through the telephone service and 2,014 intakes completed through the web service due to the ARRA program intervention.

Table 5. Increase in the number of intakes attributed to ARRA by type of cessation service

Type of Cessation Service	Statewide*	Jefferson	Mobile	Total
Telephone	710	207	132	1,049
Web	1,786	114	114	2,014
Total	2,496	321	246	3,063

*Excluding Jefferson and Mobile Counties

Change in the Number of Individuals Receiving Treatment

In addition to tracking the number of intakes completed, the Quitline/Quitnow services also track the number of individuals who receive at least one counseling session. These individuals are considered by the Quitline/Quitnow programs to be 'In Treatment.' Tobacco cessation research has shown a significant increase in abstinence rates among smokers who have some contact with a telephone counselor compared to those who do not.[12] A positive correlation has also been shown between increased contact time and higher abstinence rates for contact with a counselor for up to 90 minutes.[13]

In order to calculate the change in the number of individuals who received treatment during the period of the ARRA program intervention, baseline data were also taken for the 19-month period from July 2008 through January 2010 to calculate the number of individuals who were in treatment during this time.

The baseline data show that between July 2008 and January 2010, 3,084 individuals statewide received at least one telephone counseling session through the Alabama Quitline/Quitnow services and were considered to be in treatment according to the Alabama cessation database. This number increased during the program intervention, July 2010 through January 2012, with the number of individuals in treatment rising to 5,906 individuals, 3,826 of whom received treatment through the telephone service and 2,080 who received treatment through the online service. This amounted to an increase of 2,822 individuals who received at least one counseling session. The change in the number of individuals who received treatment is displayed in Table 6.

Table 6. Statewide increase in the number of individuals in treatment from baseline to ARRA program period

19 month period	Individuals in treatment		
	Telephone	Web	Total
July 2008 to Jan 2010 (Baseline)	3,084	0	3,084
July 2010 to Jan 2012 (ARRA Intervention)	3,826	2,080	5,906
# Increase	742	2,080	2,822
% Increase	24%	NA	92%

To estimate increases that occurred as a result of the ARRA program intervention apart from any increases caused by the CPPW program in Jefferson and Mobile Counties, the statewide increase in the percentage of individuals in treatment (excluding Jefferson and Mobile counties) was compared with the increased percentages in Jefferson and Mobile Counties. Table 7 reveals that during the ARRA program intervention period, the statewide (excluding Jefferson and Mobile counties) number of individuals receiving treatment increased by 79% from the baseline, while this number increased by 141% in Jefferson County and by 131% in Mobile County during the same period. We assume that without the CPPW program, the increase in the percentage of individuals in treatment would have been the same in Jefferson and Mobile Counties as it was in the rest of the state (79%). Thus for these two counties we attribute any increase in individuals in treatment which exceeds the state increase (79%) to the efforts of the CPPW program for the purposes of estimating increases due to the ARRA program intervention.

Table 7 details the increases in individuals receiving treatment which occurred in these counties and the programs to which they were attributed. Controlling for the promotional activities of the CPPW programs in Jefferson and Mobile Counties, it is estimated that an additional 2,451 individuals received treatment through the Quitline/Quitnow services due to the ARRA intervention.

Table 7. Increase in the number of individuals in treatment attributed to the ARRA and CPPW programs

Geographic area	Total increase in individuals In treatment		Increase attributed to ARRA		Increase attributed to CPPW	
	#	%	#	%	#	%
State*	1,937	79%	1,937	79%	0	0%
Jefferson County	503	141%	283	79%	220	62%
Mobile County	382	131%	231	79%	151	52%
Total	2,822	n/a	2,451	n/a	371	n/a

*Excluding Jefferson and Mobile Counties

The increase in individuals who received treatment due to the ARRA program is displayed in Table 8 by location and type of service. The statewide increase (excluding Jefferson and Mobile Counties) in individuals in treatment by type of service was calculated directly from the increase in individuals in treatment during the program period above those during the baseline. However, the increases by type of service in Jefferson and Mobile Counties were derived by dividing the 79% increase in these counties proportionally, using the ratio of telephone/web users in their respective counties during the program period. Thus we find an estimated increase of 601 individuals who used the telephone service and 1,850 individuals who used the web service due to the ARRA program intervention.

Table 8. Increase in the number of individuals in treatment attributed to ARRA by type of cessation service

Type of cessation service	Statewide*	Jefferson	Mobile	Total
Telephone	410	126	65	601
Web	1,527	157	166	1,850
Total	1,937	283	231	2,451

*Excluding Jefferson and Mobile Counties

Change in the Number of Individuals Who Quit Smoking

Calculating the quit rate

The Alabama Quitline/Quitnow services use the North American Quitline Consortium's (NAQC) recommended quality standard in gathering data to measure quit rates. The Quitline and Quitnow services conduct a 7-month follow-up survey from the date of registration in order to measure abstinence at roughly 6 months from the end of treatment. The 7-month timeframe allows for approximately one month of treatment and is thus equivalent to the 6-month quit-rate measurement

often used in clinical trials and in the literature.[14] The cessation services also employ a 30-day point prevalence measure to determine abstinence: “Have you smoked any cigarettes or used other tobacco, even a puff or pinch, in the last 30 days?” Respondents who state they have not used tobacco during the 30 days previous to the survey are considered to have quit.

Surveys are administered to users of the Alabama Quitline/Quitnow services who were current tobacco users at registration, received treatment, and agreed to be surveyed. The Quitline and Quitnow programs aim for a survey response rate of at least 50% for those they attempt to contact for the 7-month follow up.

During the first year that the online cessation service was available, a total of 3,473 individuals received treatment either through the telephone or through web-based cessation services. Of this group, 2,869 individuals were eligible for the survey and 1,151 were actually surveyed. The response rate for this group was 40%, 10 percentage points below the NAQC’s minimum follow-up response rate.[15] NAQC recommends a follow-up response rate of at least 50% because non-respondents to follow-up surveys are more likely to be tobacco users and thus when response rates fall below 50%, quit-rate estimates are likely to be less accurate and result in more optimistic estimates of the true quit rate.[16]

The quit rate has been measured using NAQC’s recommended Responder Rate method:

Number quit/number of follow-up survey respondents = Quit rate

Among the 1,151 individuals who completed the follow-up surveys, 434 claimed that they had not used any tobacco during the 30 days previous to the survey. Thus, the average quit rate for those completing the survey during this period was 38%, 40% for users of the telephone service and 32% for users of the web service. See the limitations section for details on measuring the quit rate.

Estimating total number of quitters

An estimate must be used for the total number of quitters during the 19-month program period (July 2010 to January 2012) since not every individual who received treatment completed a survey and since, as of the writing of this report, 7-month follow-up surveys have not been conducted with Quitline/Quitnow users who registered after June of 2011. In order to calculate this estimate, the average quit rate from the surveys conducted from July 2010 to June 2011 was multiplied by the number of individuals who received treatment during the program period from Table 6:

*Individuals in treatment (July 2010 to Jan 2012) * average quit rate (July 2010 to June 2011) = Estimated quits*

Using this formula, it is estimated that approximately 2,206 individuals will have quit using tobacco after receiving treatment from the Quitline/Quitnow services between July 2010 and January 2012 (see Table 9).

Table 9. Estimated total number of quits, July 2010 - Jan 2012

Type of service	In treatment	Quit rate*	Estimated quits
Telephone	3,826	0.40	1,534
Web	2,080	0.32	672
Total†	5,906	0.38	2,206

*Average quit rate among individuals surveyed who started treatment between July 2010 and June 2011

†Totals for In treatment and Estimated quits, Average for the Quit rate

Estimating quitters due to the ARRA program intervention

Using the number of additional individuals in treatment due to the ARRA intervention in Table 8 and the quit rates from Table 9, we can estimate the number of quits that will result from the intervention. Given an increase of 2,451 individuals who received treatment during the program period and an average quit rate of 40% for those who received telephone counseling and 32% for those who received web-based counseling, an estimated 838 quits are attributable to the intervention. Estimates for quits due to the program are displayed in Table 10.

Table 10. Estimated number of quits due to the ARRA program intervention, July 2010 - Jan 2012

Type of service	In treatment due to ARRA program	Quit rate*	Estimated quits
Telephone	601	0.40	241
Web	1,850	0.32	597
Total†	2,451	0.38	838

* Average quit rate among individuals surveyed who started treatment between July 2010 and June 2011

†Totals for In treatment and Estimated quits, Average for the Quit rate

Estimated Short-Term Cost Savings

Although it takes years for many of the cost savings from tobacco prevention programs to be realized, some significant cost savings do occur in the short term. These cost savings result from the prevention of medical conditions caused by smoking that are costly to treat, including heart disease, stroke, and pregnancy and birth complications.[17] The excess risk of myocardial infarction and stroke has been shown to fall by 50% within the first two years after a person stops smoking.[18]

In addition to these short-term cost savings, ample studies confirm the significant long-term healthcare cost savings that accrue as a result of state tobacco control programs. These savings include reduced medical costs for the treatment of expensive conditions such as cancer and chronic lung disease and for indirect costs such as treatment for diseases caused by secondhand smoke.

Cost savings estimates in this report are limited to the short-term savings resulting from the reduction in acute myocardial infarction (AMI) and stroke. Lightwood and Glantz (1997) estimated the short-term savings in direct medical expenditures and short-run rehabilitation that accrue when hospitalizations

due to AMI and stroke were prevented through smoking cessation. Based on their conclusions, an individual who quits smoking will reduce anticipated medical costs associated with AMI and stroke by $66.38 in the first year, with a discounted present value of $1,205 during a 7-year period.*

Total short-term cost savings

Applying the short-term cost savings calculations developed by Lightwood and Glantz (1997) to the estimated 838 quits resulting from the program intervention, it is estimated that a total short-term cost savings of $1,009,790 will result over a 7-year period, due to the prevention of AMI and stroke. Table 11 presents the short-term cost savings.

Table 11. Short-term cost savings from preventing AMI and stroke for ARRA-attributable quits

Estimated quits	Cost savings per quit	Short-term cost savings
838	$1,205	$1,009,790

While $1,009,790 represents the estimated short-term medical expenditures saved due to preventing AMI and stroke among 838 individuals who received cessation services during the program intervention, not all of these savings would accrue directly to the state of Alabama. The primary medical cost savings that accrue to the state are those that would have been paid for by Medicaid, which is jointly funded by the state of Alabama and the Federal Government.† Other government savings that would accrue to the State and/or Federal Government are those which would have been funded through state employee insurance (i.e., the Public Education Employees' Health Insurance Plan and the State Employees' Insurance Board) and the Medicare program.

Additionally, a portion of the medical cost savings from quitters without medical insurance would accrue to the State and Federal Governments. In a study published in 2008, Hadley, Holahan, Coughlin, and Miller developed estimates for how the uncompensated care provided to the uninsured in the United States is funded and found that approximately 75 percent of uncompensated care provided to the nation's uninsured is covered by government funds, and an estimated 31 percent of the total uncompensated care is covered by state and local governments.

To estimate the portion of medical cost savings that would accrue to the State and Federal Governments as opposed to individual residents, data on the type of medical insurance held by individuals who quit smoking with help from Quitline/Quitnow services between July 2010 and June 2011 were examined (see Table 12). Among the Alabama residents who used the telephone cessation service to quit smoking, 37.5% had government sponsored insurance, 35.9% had private or other types of insurance, and 26.6% did not have any health insurance. These proportions were different for residents who used the web-based service to quit smoking, where 14.5% had government sponsored insurance, 50.9% had private or other insurance, and 34.5% did not have health insurance.

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* Cost savings estimates from Lightwood and Glantz (1997) were adjusted for inflation to 2012.

† In 2011, the Federal Medicaid Assistance Percentage was 68.5% for the State of Alabama. See *Kaiser State Health Facts, Alabama: Medicaid Spending and Financing;* available from www.statehealthfacts.org/profileind.jsp?rep=45&cat=17&rgn=2.

Table 12. Type of health insurance held by quitters, July 2010 - June 2011

Type of insurance held	Telephone service		Web service		Total	
	#	%	#	%	#	%
Government Sponsored	120	37.5%	16	14.5%	136	31.6%
Private/Other	115	35.9%	56	50.9%	171	39.8%
None	85	26.6%	38	34.5%	123	28.6%
Total	320	100.0%	110	100.0%	430	100.0%

We can estimate the number of quitters who hold each type of health insurance and calculate cost savings by type of health insurance by applying the percentages for type of insurance care (Table 12) to the users of the respective services who quit smoking from July 2010 to June 2011 (Table 10), yielding the results shown in Table 13. When cost savings are separated by the type of health insurance held by residents who quit smoking, an estimated $213,540 are saved by individuals who hold government sponsored health insurance, $470,597 are saved by individuals who hold private or other health insurance, and $325,654 are saved by individuals who do not hold any health insurance.

Table 13. Estimated cost savings by type of health insurance for ARRA-attributable quits, July 2010 – Jan 2012

Type of insurance held	Telephone service	Web service	Total	Short-term cost savings
Government Sponsored	90	87	177	$213,540
Private/Other	87	304	391	$470,597
None	64	206	270	$325,654
Total	241	597	838	$1,009,790

Net cost savings

With a total estimated short-term cost savings of $1,009,790 and total program costs of $830,665, the estimated net cost savings resulting from the ARRA program intervention in the short-term from the prevention of AMI and stroke are $179,125. It is worth noting, however, that future net cost savings are likely to accrue more rapidly than the initial cost savings since future costs of maintaining the program will not include the start-up costs of designing and launching the Quitnow website.

Differences between the Online and Telephone Services

Demographic Differences between Users

An overview of the demographic data collected in the intake surveys provides insight into the users of the online cessation service and how these users compare to the users of the traditional telephone service. The data included in this section were taken from the individuals who completed at least one treatment session between July 2010, the first month that the online web service became available, and January 2012. Table 14 shows the number of individuals who began treatment each month either through the telephone or the web service during the ARRA program period. The demographic information provided in this section is displayed in Table 15 and in Figures 2-6 in the appendix.

Table 14. Individuals in treatment by type of service and month

Month	Telephone	Web	Total
Jul-10	115	6	121
Aug-10	207	238	445
Sep-10	206	51	257
Oct-10	169	40	209
Nov-10	197	50	247
Dec-10	231	94	325
Jan-11	380	179	559
Feb-11	225	79	304
Mar-11	201	94	295
Apr-11	157	76	233
May-11	146	92	238
Jun-11	168	72	240
Jul-11	156	82	238
Aug-11	155	175	330
Sep-11	224	121	345
Oct-11	193	121	314
Nov-11	213	146	359
Dec-11	146	83	229
Jan-12	287	281	568
Total	3,776	2,080	5,856

Race

Demographic information collected during the intake surveys reveals that while white residents make up a greater percentage of individuals in treatment using both telephone and web services, they make up a larger percentage of the web users (87%) than they do of the telephone users (70%). African American residents make up a larger percentage of the telephone users (27%) than they do of the web users (10%). These findings suggest that white residents are benefiting more from the addition of the online service than are African American residents.

Gender

While there are substantial differences in usage based on race, the proportions of usage of both services by gender are quite similar. Female residents are responsible for approximately 68% of the telephone intakes and 69% of the web intakes.

Age

Differences in the age of users of the telephone and online services are notable. When categorized into 10-year age increments, 50-59 year old residents make up the largest group of telephone users while 30-39 year old residents make up the largest group of web users. The online service is used more frequently than the telephone service among young and middle-aged residents (<18, 19-29, 30-39, 40-49), while the opposite is true for older residents (50-59, 60-69, >69).

Education

Alabama residents who use web services are more educated on average than residents who use telephone services. When asked for the highest level of education they have completed, on average, residents who used web services responded that they have attended at least some college, while residents who used telephone services were more likely to respond that they had completed no more than high school. Approximately 25% of residents who received treatment using the online service have a college degree, while the same is true for only about 9% of residents who received treatment using the telephone service. These findings suggest that better educated residents benefit more from the addition of the online service than less educated residents.

Health Insurance

Information collected on the quitline users' type of insurance reveals substantial differences between the users of the online and telephone services. Approximately 42% of residents who use the telephone service and 15% of residents who use the online service reported having some type of government sponsored insurance. Furthermore, 26% of residents who use the telephone service and 46% of residents who use the online service reported having private or other insurance. These findings suggest that residents with private insurance benefit more from the addition of the online service than residents with government sponsored insurance.

This finding is notable because it helps to explain the short-term direct savings that accrue to the State and Federal Governments that would have been covered through a government sponsored health care program. Although cost savings do accrue to the State and Federal Government through the addition of the online cessation service, they do not accrue as quickly since the individuals who use the online service are less likely to have government sponsored health insurance than individuals who use the telephone service.

Table 15. Demographic information by type of cessation service

Demographic category	Telephone in treatment	Web in treatment
Race		
African American	27.1%	10.0%
White	70.2%	87.1%
Other racial group	2.7%	2.9%
Gender		
Female	68.1%	69.0%
Male	31.9%	31.0%
Age		
< 19	0.4%	0.5%
19-29	14.3%	18.3%
30-39	18.4%	29.4%
40-49	23.5%	25.3%
50-59	27.8%	17.8%
60-69	13.2%	7.0%
> 69	2.4%	1.6%
Education level		
Less than 9th grade	7.2%	1.7%
Grade 9 to 12	23.8%	7.9%
HS diploma	35.6%	34.3%
Some college	24.7%	31.0%
College degree	8.6%	25.1%
Insurance		
Government Sponsored	41.6%	14.7%
Private/Other	26.2%	45.5%
None	32.2%	39.8%

Performance Outcome Differences between Services

The online and telephone cessation services can also be compared by performance outcomes including satisfaction ratings, quit rates, the intake to in-treatment ratio, and cost-per-user estimates. The outcome data discussed in this section are displayed in Tables 16 and 17.

Satisfaction

As part of the follow-up survey conducted seven months after the first contact with Quitline/Quitnow services, users who received some type of treatment are asked a question about their level of satisfaction with quitline services. The question reads, “Overall, how satisfied were you with the service you received from the quitline?” Survey respondents are given four response options including ‘very satisfied’, ‘mostly satisfied’, ‘somewhat satisfied’, or ‘not at all satisfied’.

Survey results show significantly higher levels of user satisfaction among web users compared to telephone users. (See Figure 7 in the appendix.) Among the web users who were surveyed, 70% said that they were very satisfied with the services they received, and only 3% said they were not at all satisfied. Among the telephone users who were surveyed, 56% said that they were very satisfied with the services they received and 12% said they were not at all satisfied.

Quit rate

Data from the 7-month follow-up surveys that were completed with individuals who participated in treatment during the ARRA program intervention reveal differences in the quit rates between users of the telephone and online services. As previously mentioned, users of the telephone service showed higher quit rates (40%) than users of the online service (32%).

Intake to in-treatment ratio

Examining the intake to in-treatment ratio is one way to analyze the progress that individuals are making toward quitting using a particular service. Interpreting the difference in these ratios is difficult however, as it could be driven by a variety of factors including (1) how user friendly the system is, (2) how many barriers exist in the system that could keep the users from connecting with a counselor, (3) and how prepared the users of the service are to participate in treatment.

During the ARRA program period, on average, one individual went into treatment using the telephone service for every 2.27 individuals who completed a telephone intake. This is to say that 44% of the individuals who completed a telephone intake went on to receive treatment. The users of the online service had a more favorable intake to in-treatment ratio on average, with one individual going into treatment for every 1.17 individuals who completed an online intake. In other words, 85% of the individuals who completed an online intake went on to receive treatment.

Table 16. Performance outcomes by type of cessation service

Performance outcome	Telephone service	Web service
Satisfaction		
Very satisfied	55.6%	69.8%
Mostly satisfied	20.2%	14.4%
Somewhat satisfied	12.3%	12.7%
Not at all satisfied	11.9%	3.2%
Quit Rate	40.0%	32.0%
Individuals completing intakes who also receive treatment	44.0%	85.4%

Cost-per-user estimates

The final comparison that we will make between the Quitline and Quitnow cessation services is the cost per user of each program. This comparison gauges cost effectiveness by dividing the total operating costs of a particular service by the number of users or quitters for that service. Data from the 12-month period from July 2010 to June 2011 will be used for this comparison since 7-month follow-up surveys measuring quit rates had not been completed past this period as of the writing of this report. Additionally, as it is not necessary to distinguish whether users found out about the cessation services due to the ARRA or CPPW programs, this comparison will include all intakes, individuals in treatment, and estimated quits.

Between July 2010 and June 2011, the cost of operating the Quitline totaled $440,051, with 5,299 intakes completed, 2,402 individuals in treatment, and an estimated 961 individuals who quit smoking. Over the same period, the cost of operating the Quitnow service totaled $119,480, with 1,199 intakes completed, 1,071 individuals in treatment, and an estimated 343 individuals who quit smoking. The operating costs mentioned above include labor and capital and the cost of nicotine replacement therapy (NRT). Using these operating costs and the number of individuals who completed intakes, received treatment, and are projected to have quit during this 12-month period, we have calculated cost-per-user estimates which are displayed in Table 17. The estimated cost per quit, which includes operating and NRT costs, is estimated to be $458 for Quitline users and $349 for Quitnow users. Monthly operating costs for both services are reported in Tables 18 and 19 of the appendix.

Table 17. Cost-per-user estimates by type of cessation service

Cost Category	N	Quitline	N	Quitnow
Cost per intake*	5,299	$69	1,199	$81
Cost per individual in treatment†	2,402	$152	1,071	$91
Cost per quit at 6 months**	961	$458	343	$348
Operating costs only		$380		$283
NRT costs		$78		$65

*Includes operating costs and excludes NRT costs; Quitline=$365,051/5,299, Quitnow=$97,106/1,199
†Includes operating costs and excludes NRT costs; Quitline=$365,051/2,402, Quitnow=$97,106/1,071
**Includes operating costs and NRT costs; Quitline=$440,051/961, Quitnow=$119,480/343

Summary and Conclusions

Findings from this evaluation show that from the baseline period (June 2008 – January 2010) to the ARRA program intervention period (June 2010 – January 2012) intakes completed through Quitline/Quitnow services increased by 44%, from 6,998 to 10,061*, and the number of individuals receiving treatment increased by 79%, from 3,084 to 5,535*. It is estimated that the increased usage in the Quitline/Quitnow services due to the ARRA program intervention will ultimately result in an additional 838 individuals who quit smoking, a short-term savings of $1,009,790 in direct medical expenditures and short-run rehabilitation costs†, and a short-term net cost savings of $179,125 (which accounts for AMI and stroke prevented during the next 7 years). Since approximately 31% of the individuals who quit smoking due to the ARRA program intervention hold Medicaid, Medicare, both, or another type of government sponsored health care, the cost savings from these individuals is likely to accrue to the State and Federal Governments ($213,540). The other 69% of individuals who quit due to the program intervention are comprised of those who hold private insurance (39.8%) and those who do not hold any health insurance (28.6%). While it can be assumed that the cost savings of the individuals who hold private insurance will accrue to themselves and their health insurance providers ($470,597), the cost savings of the individuals who do not hold health insurance ($325,654) is likely to be split between themselves, the hospitals where they would have received treatment, and the government.[19] Hadley et al. (2008) estimated that approximately 75% of uncompensated care provided to the nation's uninsured is covered by government funds, with 31% of total costs being funded by state and local governments.[20]

Promotional media efforts during the grant appear to have varied in effectiveness and were evaluated based on the increase in the number of intakes chronologically associated with the media campaigns and the source information gathered from intake interviews. These data suggest that the media efforts that increased Quitline/Quitnow usage most effectively were the press releases distributed by ADPH announcing the kick-off and the one-year anniversary of the Quitnow service, the paid newspaper post-it note campaign in November of 2011, the al.com paid online advertising campaign in January of 2012, and the statewide paid newspaper campaign in January of 2012.

An analysis of the demographic characteristics of the Alabama residents who use the newer online service reveals significant differences in the users of this service compared to the users of the traditional telephone cessation service. The data show that on average, white, better-educated, and younger groups of individuals use the online service more than African American, less-educated, and older groups of individuals. These findings may be important to consider in determining whether the addition of the online cessation service is reaching the groups of individuals that ADPH intends to reach through its cessation services.

The online and telephone cessation services can also be compared by the levels of user satisfaction, the quit rate, the progression from intake to treatment among users, and the cost per user. Data from the follow-up surveys reveal higher levels of satisfaction in the service received by users of the online

* These are increases attributed to the ARRA program intervention and exclude increases attributed to the CPPW program.

† These are the cost savings that accrue when hospitalizations due to AMI and stroke are prevented through smoking cessation.

service than users of the telephone service. User data show that 85% of individuals who completed a web intake and 44% of individuals who completed a telephone intake went on to receive treatment. Cost data reveal that the cost per quit was less expensive for the online service than for the telephone service. While all of these findings suggest positive outcomes for the online service compared to the telephone service, the data show that the quit rate for the users of the telephone service (40%) was higher than the quit rate of the individuals who used the online service (32%).

Limitations

Estimating the change in Quitline/Quitnow usage due to the addition of the online cessation service and the media campaigning funded by the ARRA grant requires recognizing and controlling for a number of confounding factors, including seasonal variation, historical trends in quitline usage, and other programs or activities that could potentially influence Quitline/Quitnow usage. Estimating outcomes also requires making assumptions about quit rates and costs which may result in systematic error. This section outlines some of the factors and methods that were considered in evaluating the impact of this program and discusses the limitations of this report.

Seasonal variation and historical increases

An analysis of the Alabama Quitline/Quitnow data shows seasonal patterns in its usage that typically reflect higher usage at the beginning and end of the calendar year. In order to control for these seasonal fluctuations, historical data for the same seasonal time periods were selected for comparison with the data collected during the grant period. The online cessation service offered in Alabama became available in July of 2010 and the program ended in January of 2012. Because the 19-month period that is being examined (July 2010 through January 2012) does not fall neatly within the calendar year, a corresponding 19-month period preceding the ARRA program intervention was selected as a comparison (i.e., July 2008 through January 2010).

Ideally, historical trends in Quitline/Quitnow usage would be taken into account in measuring the impact of the ARRA program intervention, as increases or decreases could be expected in the absence of an intervention. However, it was decided for the following reasons that it would be unwise to attempt to use historical trend data in this analysis: (1) The lack of information regarding past promotional activities and the seasonal fluctuations in the usage of the Quitline together lead to extreme volatility and outliers in the data which skew yearly averages, and (2) The accuracy of the historical data is suspect due to discrepancies found in the dataset and possible overlap caused by the transition to a newer database in April 2009. Due to these data limitations we did not attempt to control for historical increases in usage and we recognize that as a limitation of this study. Historical trends can be viewed in the appendix in Figures 8 and 9.

Other media campaigns

At the same time that Quitline/Quitnow services were being promoted through funds from the ARRA grant, they were also being promoted in the two largest counties in Alabama (i.e., Jefferson and Mobile) through grants received from the CDC as part of the CPPW initiative. Jefferson County received a grant of $7 million for tobacco prevention which was funded from February of 2010 to February of 2012. ADPH and Mobile County received a grant to be used in Mobile County worth $2.25 million in September of 2010 which runs through September of 2012. Both of these counties planned to educate their communities about the dangers of tobacco and exposure to secondhand smoke. Mobile County had a specific goal to increase the usage of the Quitline/Quitnow services in Mobile County by 15%. To this end, the Mobile County Health Department promoted Quitline/Quitnow services on television and in print advertisements in Mobile County with funds from the CPPW initiative.

In order to separate the impact of the CPPW initiative on the Quitline/Quitnow usage from the impact of the ARRA program intervention, the increases in intakes completed and the individuals in treatment from Jefferson and Mobile Counties were examined separately from those of the rest of the state. As was expected, Jefferson and Mobile Counties showed greater increases in intakes completed and individuals receiving treatment during the ARRA intervention compared to the rest of the state. In order to separate the effects of the ARRA and CPPW programs, it was assumed that in the absence of the CPPW program, the percentage increase in intakes completed and the percentage increase in individuals in treatment would have been the same in Jefferson and Mobile Counties as they were in the rest of the state. Any increase in these counties above the statewide percentage was attributed to the CPPW program. See Tables 4 and 7 for the percentage increases in intakes completed and individuals in treatment in Jefferson County, Mobile County, and the rest of the state. We recognize that this method does not capture and allocate the outcomes of the disparate grant initiatives precisely and therefore suggest this as a limitation of this evaluation.

It should be noted that we did not control for the effects of any tobacco prevention initiatives which may have occurred before or during the ARRA program intervention other than the CPPW initiatives.

Measuring quit rates

If it were possible to follow up with all of the individuals who received treatment through Quitline/Quitnow services, measuring the quit rate would be a simple calculation (number quit/number who received treatment). However, because it is not feasible to conduct follow-up surveys with every individual who received treatment, assumptions must be made about the missing data. Clinical research has established that individuals who do not complete treatment in its entirety, including the follow-up survey, show less favorable outcomes than those who do.[21]

With the issue of missing data in mind, NAQC suggests two main approaches to measuring quit rates which are the Responder Rate (RR) approach and the Intention-To-Treat (ITT) approach. The RR approach bases the quit rate solely on those who respond to the survey (number quit/number of follow-up survey respondents). This approach ignores the non-respondents who are likely to have lower quit rates and thus tends to overestimate the true quit rate. The ITT approach bases the quit rate on the entire pool of individuals who were in treatment (number quit/number of individuals in treatment) assuming that all non-respondents have not quit smoking. This approach leads to an extremely conservative estimate which underestimates the true quit rate. The systematic over- or under-estimation of the true quit rate resulting from these two approaches tends to be exacerbated by a lower response rate.[22]

Based on studies using quitline data, NAQC recommends that evaluators use the RR approach because it has been shown to more closely approximate the true quit rate. Estimates for the quit rate in this report were measured using the RR approach. It should be noted that this method likely overestimates the true quit rate because of the systematic error inherent in using this approach and because the response rate for the follow-up surveys for Quitline/Quitnow services was 40%, 10 percentage points below the NAQC's recommendation for the minimum follow-up response rate of 50%.

Duplicate records

The records for the users of the telephone and the online cessation service are kept in separate databases which creates the possibility of counting the same individual twice in estimating the number of individuals who quit due to the program. In order to check for duplicate records among the individuals in treatment for the telephone and the web services, telephone numbers were compared between the two databases. This comparison yielded 67 duplicate telephone numbers between those in treatment in the telephone and web databases. However, due to a lack of information about these duplicates (i.e., which service they used first, in which county they reside, and what the average quit rate is among individuals who use both services), which makes it difficult to extract them from the number of estimated individuals in treatment due to the program, this duplication was ignored in this evaluation.

The duplicate records are a limitation of this evaluation and may have the effect of overestimating the number of individuals who quit due to the program. In the worst case, assuming that all of these individuals were estimated to have quit because of the ARRA program, these duplicates could result in an overestimation of 25 individuals who quit.

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Appendix

Figure 1. Timeline of Quitline/Quitnow intakes and promotional activities

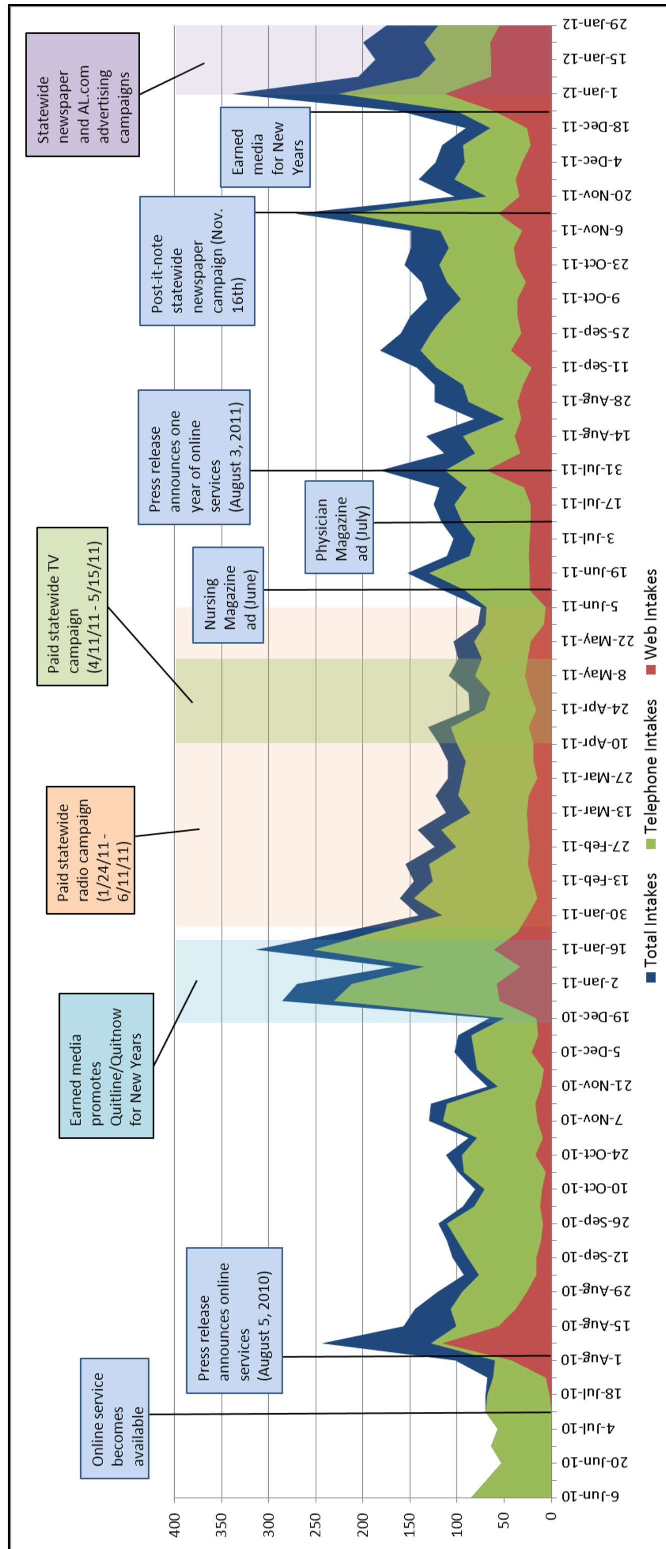

Figure 2. Percent of individuals in treatment by race and type of service, July 2010 – Jan 2012

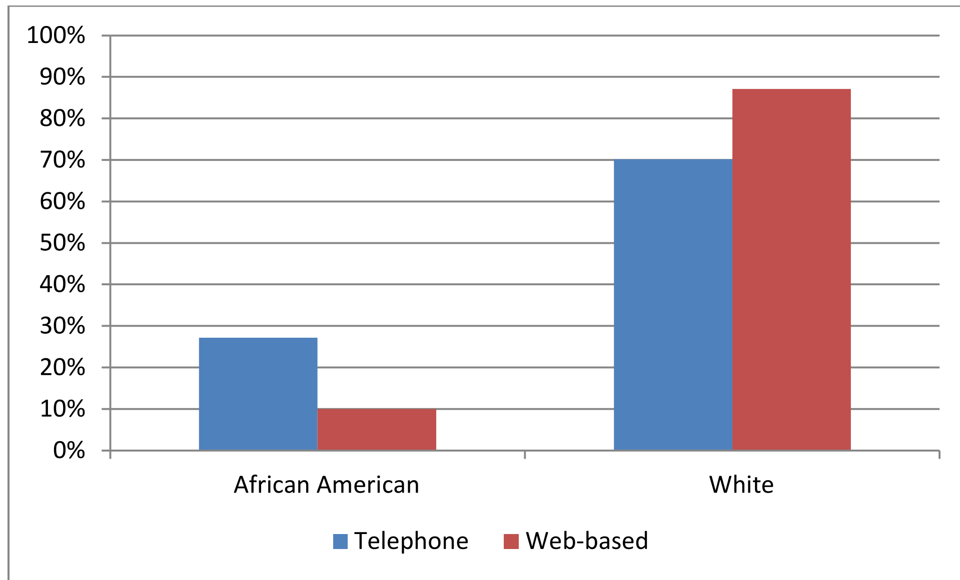

Figure 3. Percent of individuals in treatment by gender and type of service, July 2010 – Jan 2012

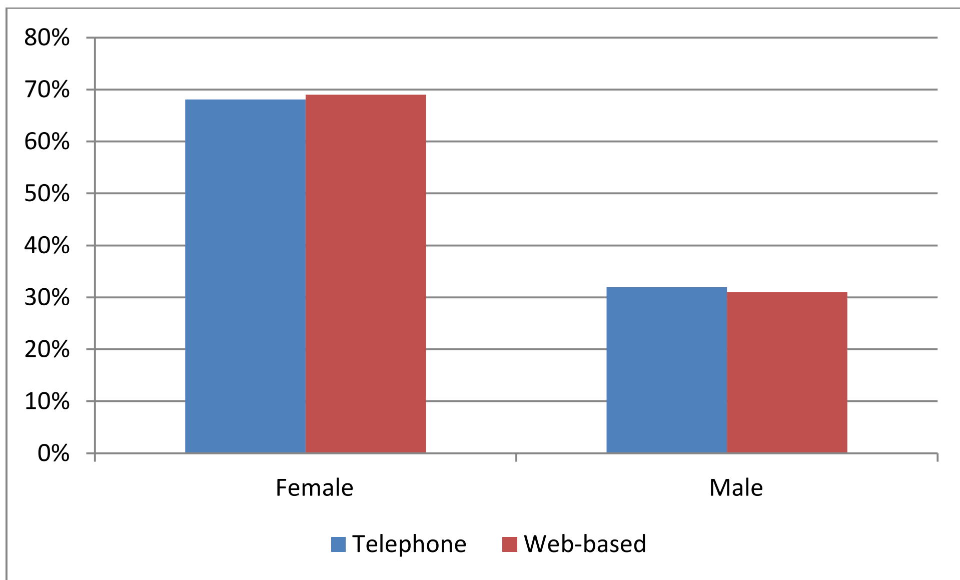

Figure 4. Percent of individuals in treatment by age and type of service, July 2010 – Jan 2012

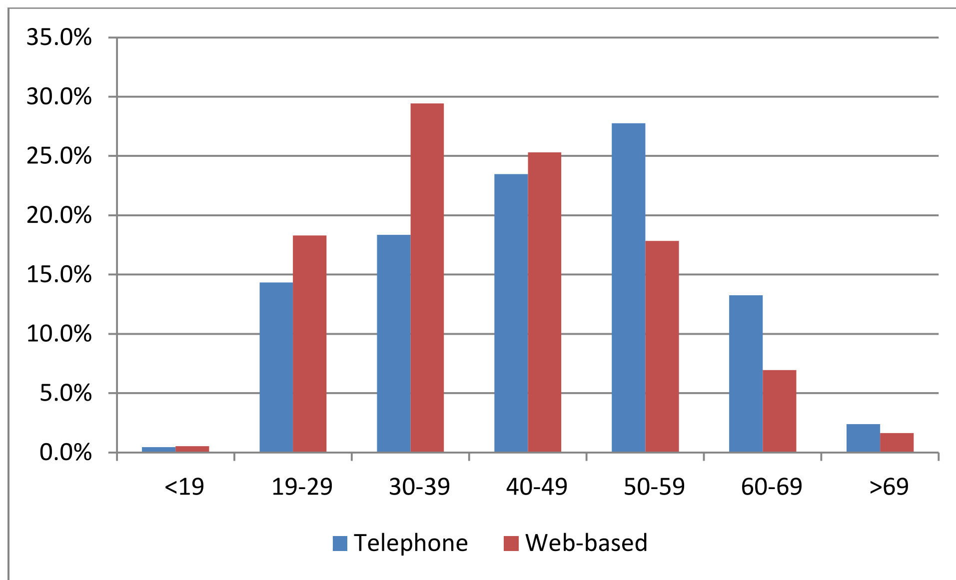

Figure 5. Percent of individuals in treatment by education level and type of service, July 2010 – Jan 2012

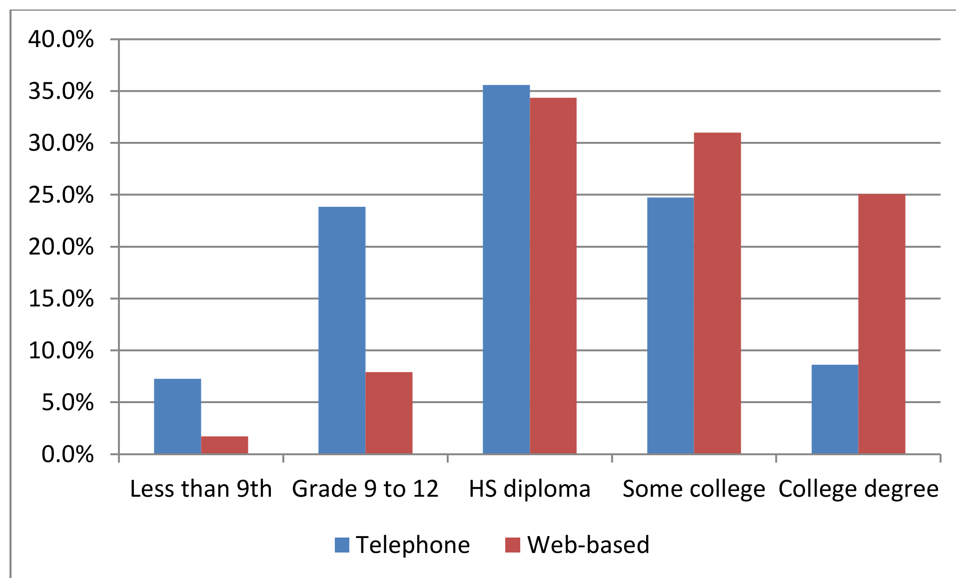

Figure 6. Percent of individuals in treatment by type of insurance held and type of service, July 2010 – Jan 2012

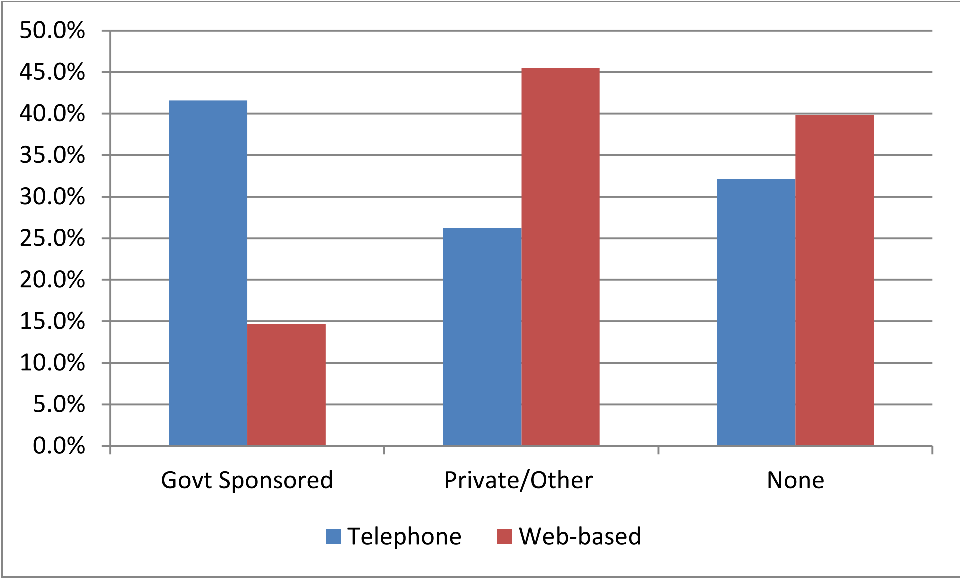

Figure 7. Percent of individuals in treatment by level of satisfaction and type of service, July 2010 – Jan 2012

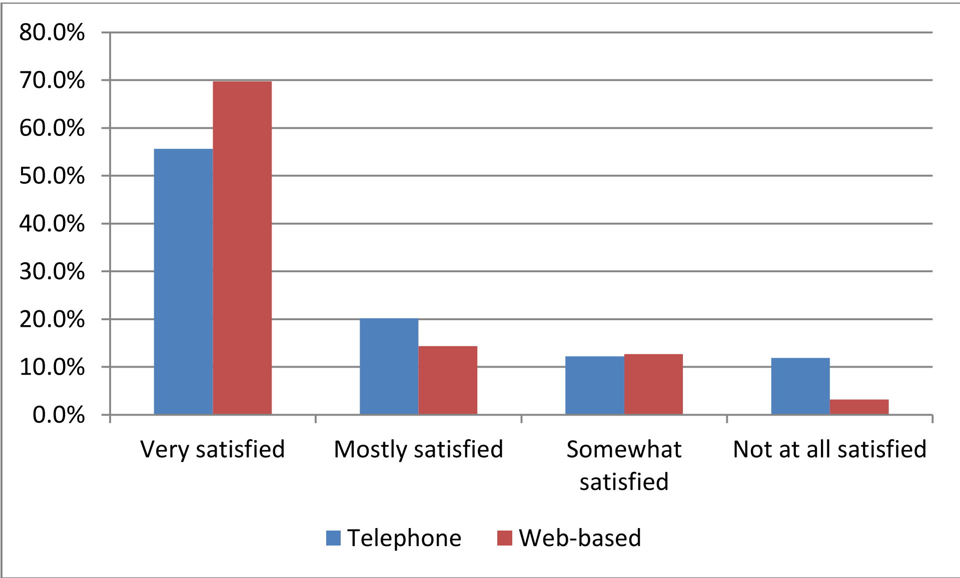

Table 18. Quitline (Telephone) Operating Costs, July 2010 - June 2011

Month	Costs without NRT	NRT	Cost with NRT
Jul-10	$31,769.68	$22,000.00	$53,769.68
Aug-10	$32,257.29	$19,000.00	$51,257.29
Sep-10	$31,290.59	$14,000.00	$45,290.59
Oct-10	$36,427.54	$0.00	$36,427.54
Nov-10	$36,718.64	$0.00	$36,718.64
Dec-10	$30,908.30	$0.00	$30,908.30
Jan-11	$20,222.26	$0.00	$20,222.26
Feb-11	$10,833.41	$0.00	$10,833.41
Mar-11	$16,372.08	$0.00	$16,372.08
Apr-11	$35,890.69	$0.00	$35,890.69
May-11	$37,647.97	$0.00	$37,647.97
Jun-11	$44,712.46	$0.00	$44,712.46
Total	$365,050.91	$75,000.00*	$440,050.91

*Some of the NRT costs utilized during these 12 months were paid in advance

Table 19. Quitnow (Web) Operating Costs, July 2010 - June 2011

Month	Costs without NRT	NRT	Cost with NRT
Jul-10	$3,384.17	$0.00	$3,384.17
Aug-10	$8,195.92	$2,160.00	$10,355.92
Sep-10	$4,841.20	$3,366.00	$8,207.20
Oct-10	$1,187.09	$1,254.00	$2,441.09
Nov-10	$5,468.09	$1,134.00	$6,602.09
Dec-10	$5,219.50	$837.00	$6,056.50
Jan-11	$16,588.78	$2,889.00	$19,477.78
Feb-11	$14,444.40	$2,760.00	$17,204.40
Mar-11	$7,127.04	$2,436.00	$9,563.04
Apr-11	$7,171.79	$1,707.00	$8,878.79
May-11	$12,052.65	$1,410.00	$13,462.65
Jun-11	$11,425.11	$2,421.00	$13,846.11
Total	$97,105.74	$22,374.00	$119,479.74

Figure 8. Alabama Quitline/Quitnow intakes, July 2005 – Jan 2012

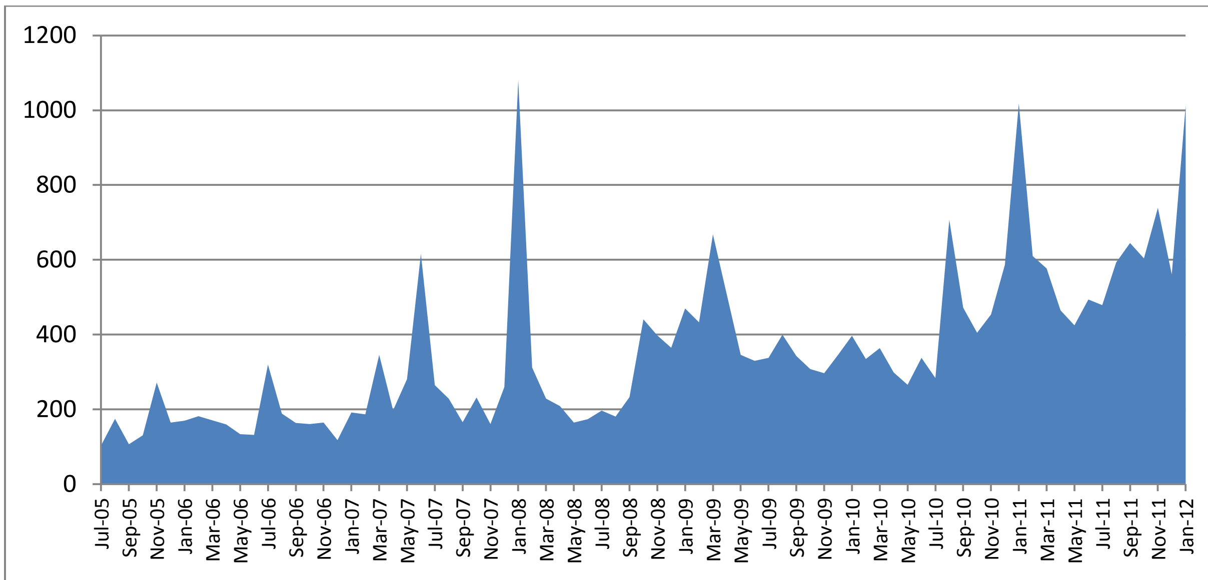

Figure 9. Alabama Quitline/Quitnow individuals in treatment, July 2005 – Jan 2012

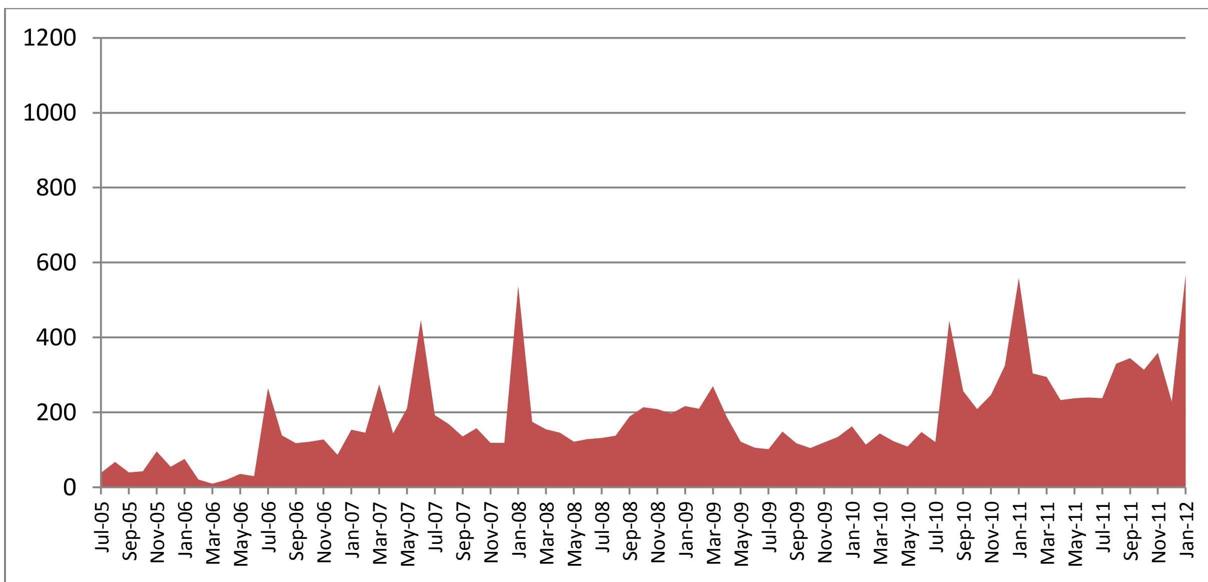

Table 20. Alabama Quitline/Quitnow intake and in treatment data, July 2008 – Jan 2012

Month	Telephone intakes	Web intakes	Total intakes	Telephone in treatment	Web in treatment	Total in treatment
Jul-08	197	0	197	132	0	132
Aug-08	181	0	181	138	0	138
Sep-08	233	0	233	189	0	189
Oct-08	441	0	441	214	0	214
Nov-08	398	0	398	209	0	209
Dec-08	365	0	365	197	0	197
Jan-09	470	0	470	217	0	217
Feb-09	433	0	433	210	0	210
Mar-09	668	0	668	270	0	270
Apr-09	507	0	507	188	0	188
May-09	346	0	346	122	0	122
Jun-09	330	0	330	106	0	106
Jul-09	338	0	338	102	0	102
Aug-09	400	0	400	149	0	149
Sep-09	343	0	343	118	0	118
Oct-09	308	0	308	105	0	105
Nov-09	297	0	297	120	0	120
Dec-09	346	0	346	135	0	135
Jan-10	397	0	397	163	0	163
Feb-10	335	0	335	114	0	114
Mar-10	364	0	364	144	0	144
Apr-10	299	0	299	123	0	123
May-10	266	0	266	109	0	109
Jun-10	338	0	338	148	0	148
Jul-10	276	8	284	115	6	121
Aug-10	438	269	707	207	238	445
Sep-10	412	60	472	206	51	257
Oct-10	359	46	405	169	40	209
Nov-10	399	55	454	197	50	247
Dec-10	480	107	587	231	94	325
Jan-11	821	197	1018	380	179	559
Feb-11	524	86	610	225	79	304
Mar-11	470	107	577	201	94	295
Apr-11	382	83	465	157	76	233
May-11	323	102	425	146	92	238
Jun-11	415	79	494	168	72	240
Jul-11	381	98	479	156	82	238
Aug-11	395	198	593	155	175	330
Sep-11	511	134	645	224	121	345
Oct-11	462	142	604	193	121	314
Nov-11	557	182	739	213	146	359
Dec-11	408	153	561	146	83	229
Jan-12	684	329	1013	287	281	568