



Establishing Best Practices for Quitline Operations: Back to Basics...a conference call series dedicated to the exchange and dissemination of quitline research and innovations in practice

Calculating Quit Rates

Introduction

There are many questions related to quit rates that NAQC members continue to voice. For instance:

- How are quit rates calculated?
- How are they reported?
- Why are some quit rates so much higher than others?
- Why don't we all just report them the same way?

While the issue of quit rate calculation can be a complex one, there are some basic terms and methodologies that are critical to understand, especially as they relate to quitline contract administration and management; working with those outside of the quitline community to gain support for your program; and even the issue of quality assurance.

Below is a summary of the conference call presentation given by Dr. Jessie Saul, senior research program manager for ClearWay MinnesotaSM.

Why Is Calculating Quit Rates So Difficult?

Everyone does it differently...

Each quitline has their own purpose for calculating and sharing their quit rates. For example, the quit rate may serve a promotion or publicity function, or it could be tied to research. Each quitline also has their own history of calculating quit rates and may be hesitant to make changes and lose the ability to make comparisons over time. Ultimately, there is no universal standard of practice when it comes to calculating these rates.

Many things affect quit rates...

Essentially, a quit rate is the number of people who quit divided by the number of people served. However, there are various ways to **exclude** people from either of these numbers.

How was the number of people who quit measured?

The number of people who quit is usually measured through follow-up surveys. However, there are a number of factors that may influence how big or small this number is:

- The number of contact attempts can affect the number of people you reach.
- People who quit are more likely to respond to follow-up surveys.
- People who are still smoking are harder to reach.
- The more attempts you make, the higher your response rate, the more people (smokers) you reach. Knowing the response rate is important, as a low response rate usually indicates unreliable results.

It is also important to know when the follow-up survey was conducted. More people relapse as time goes on, so 3 month quit rates will be higher than 6 month quit rates, which will be higher than 12 month quit rates.

Who did you count as the total number of people served?

Many criteria can be used to determine the denominator (number of people served). When reviewing your quitline's quit rate, it is critical to understand who was included in this number. Was it:

- Everyone who registered for services?
- Everyone who consented to follow-up?
- Everyone who completed the program?
- Everyone who still had a working phone number at follow-up?
- Everyone who was not deceased at follow-up?
- Everyone who responded to the follow-up survey?

The more exclusive the criteria used to determine the denominator, the higher the quit rates will be, assuming the number of people who quit (the numerator) remains constant. Considering there is no recognized standard of practice for quit rate calculation, there is no right or wrong way of defining the total number of people served. But it is important to be clear about which criteria were used.

What did the population receiving services look like?

We do know that some people have a harder time quitting than others (for example, women, low SES clients, clients without insurance, and heavy smokers). If your quitline serves a majority of these smokers, it may be true that you will have lower quit rates than a quitline that rarely serves these populations. If a quitline serves only uninsured persons, it might expect a lower quit rate than one that serves members of a health plan.

What services were provided?

The types of services offered by a quitline impacts on quit rates. It may also be true that the number of service calls a quitline provides, and whether or not callers had access to NRT, has an impact on quit rates.

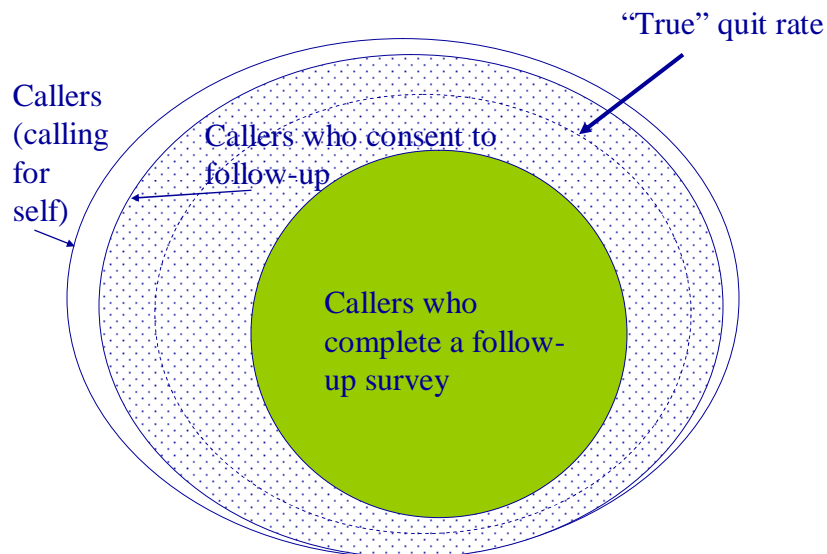
Ultimately, the most important thing to know about a quitline's quit rate is the context within which it was calculated. The context helps you to truly understand what the quit rate really means and whether or not it can be compared to others.

Quit Rates 101 - Definitions

There are two types of quit rates commonly cited in the literature – completer rates and intention to treat rates. A completer rate only counts those who respond to follow-up surveys and is a more optimistic estimate of a “true” quit rate. On the other hand, the intention to treat rate counts all those who were eligible for treatment who consented to follow-up. This method assumes that clients who are unable to be reached for follow-up are still smoking thus, providing a more conservative estimate of a “true” quit rate. The “true” quit rate really lies somewhere in between both calculations.

Below is a graphic representation of the two methods of quit rate calculation. Considering it is unlikely to reach all those who consented to follow-up, the goal is to increase the response rate. This would result in either rate being relatively close to the “true” rate.

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Questions to Ask About Your Quitline's Quit Rates

The goal is to truly understand what your quitline's quit rate means, and in some instances, you will want to be able to compare that rate to other quitlines and to explain the rate to those outside of the quitline community. Below are some important questions about your quitline's quit rate that you should be able to answer and if you are not sure, you should ask your service provider:

- What kind of quit rate is this? (completer or ITT)
- Who is counted in the denominator?
- What was the response rate?
- What attempts were made to raise the response rate? (e.g., more call attempts, incentives, etc.)
- What did the population served look like? (demographics and tobacco use characteristics)
- What services were provided? (Number of calls, proactive vs. reactive, free or reduced NRT)
- What question was used to assess quit status?
- What time period was the quit rate measured in?

Questions, Ideas & Concerns Noted from the Conference Call

What is the usual response rate for a state quitline's follow-up surveys?
I can only speak for Minnesota, as there is no standard. We aim for over 65%, but hope for 80%. We do things like pre-notification letters, make multiple call attempts and provide incentives to get better response rates.

You mentioned that there is a declining response rate to surveys in general and in West Virginia we have seen an increase in "lost to follow up" from 40-44% and now up to 50%. What could this be attributed to?
There is a general decline in telephone response rates. Some of this could be linked to an increased use of cell phones and to more and more people not having land lines. This is a particularly common situation among younger people, and is expected to increase as those people get older.

You stated that people who quit are more likely to respond to follow-up surveys and people who are still smoking are harder to reach. Could you comment on the article last year by Tomson, Bjornstrom, Gilljam and Helgason, "Are non-responders in a quitline evaluation more likely to be smokers?" They actually found that when they surveyed non-responders, their quit rate was actually HIGHER than those successfully contacted.

Upon review of the limitations of their study, it is important to note that the original study was done by mail, so it may not be the same as those where an initial survey was conducted by phone. Their phone follow-up of a sample of non-respondents to the written survey only reached 55% of the non-responder sample - so there is a "non-responder non-response rate"

issue. Finally, the sample size was small (they attempted to contact 84 non-responders). However, more studies like this are important. (See study abstract below.)

What types of incentives does Minnesota use?

We mail a \$10 check upon completion of the survey. We offer the \$10 at the time of registration in order to minimize bias.

Are your follow-up surveys all conducted by phone?

Yes

What does the research tell us about the optimum number of calls related to quit rates and return on investment?

We look to the Clinical Practice Guidelines for guidance on this issue. It shows that there are diminishing returns after 8 calls. Free & Clear has actually seen diminishing returns after 10. Minnesota makes up to 15 attempts to reach people.

There is some research that points to effectiveness being tied to the placement of calls. We are missing this information (when calls should be made) from the literature though. This would make for a good study – a randomized controlled trial for different call timings.

ACS did some work looking at protocols with call backs. Vance Rabiuss would be a good person to contact about this. His email is Vance.Rabiuss@cancer.org.

Why not do a sample of those who consent to follow-up?

Good point – you don't have to survey everyone who calls for services.

Do you follow up with 100 percent of callers?

No, Minnesota uses cohort sampling – sampling of callers who call between two dates. There is an assumption that MDS recommends that you follow up with everyone exhaustively, but this is not the case. It really depends on an individual quitline's needs. Different sampling methods are useful for different purposes.

- Exhaustive sampling (following up with everyone who registers) will minimize response bias, and ensure that you have follow-up data on the maximum number of people possible. Depending on your call volume, however, this can be an expensive prospect.
- Random sampling can produce a representative sample of callers from which you can generalize to the total population of callers. There is less potential for response bias than with cohort or time-limited sampling, unless the sample is not really representative. Comparing the sample selected to those who were not selected for

- follow-up can help determine whether there was a bias introduced in the sampling.
- Cohort or time-limited sampling involves following up with people who register during a limited time period. This can introduce more bias depending on environmental factors (seasonality, promotional campaigns, etc.), but is most effective for measuring the effect of changes in protocol or the impact of environmental factors.

Ultimately, we focus on getting a high response rate so that there is less difference between the completer rate and the intent to treat rate!

We also struggle with definition and timing when it comes to quit rates. What definition will you use once you have someone on the line – what does it mean to be “quit”? Is it 7-day point prevalence at time of call or 30 days...and there is variance on the definition for continuous abstinence as well (strict definition vs. a lenient definition that allows for slips). There is also controversy about when the follow-up clock starts to click. Do we count from time of registration or the quit date or the date treatment is completed?

There is also an issue about who is collecting the data. Is a quitline using an outside, independent evaluator; is an actual counselor conducting follow-up; are they using an intermediate (an internal division of the service provider, but separate from the counseling division). These are issues that are important to discuss.

Do you prepare/inform everyone you might contact?

We prepare everyone to allow for the surveys to be turned on and off at any point. This allows us to follow up with callers for either short-term satisfaction surveys or longer-term quit surveys.

Where does NAQC stand on developing standard follow up questions and a standard quit rate definition?

NAQC has made recommendations on standard follow-up questions. These can be found on pages 7-10 of the MDS Intake document. As for developing a standard quit rate definition – we are simply not there yet. We do understand that it is an important issue for members, and we will continue to provide forums for discussion on the topic.

For information on trends related to public opinion research, visit <http://www.aapor.org/default.asp>.

Declining Response Rate, Rising Costs

Credit: Michael Greenland, National Science Foundation

http://www.nsf.gov/news/special_reports/survey/index.jsp?id=question

If costs rise and fewer surveys are funded, and if people do not take the time to participate in scientific surveys, we will know less and less about our society over time.

The future of surveys as a reliable means to measure trends is in doubt. The response rates for surveys have been declining. E-mail surveys, touted as being convenient, have shown significant sample bias and non-response problems.

Response rates are often used as a measure of the quality of survey data because non-response is often not random. For example, the U.S. Census Bureau finds that single-person households have a much higher “not at home” rate—and therefore a lower response rate—than multi-person households. This type of nonrandom non-response could skew sample data and lead to under-representation of certain groups unless efforts are made to include these respondents. Therefore, researchers take declines in response rates seriously because in general, the higher the response rates, the more reliable the results.

People today seem more likely to say no to a survey taker due to the sheer quantity of requests for their attention, the possibility that a survey may be a sales pitch in disguise, disinterest in the topic or an unwillingness to give honest and thoughtful answers. Telephone sales pitches and phony or biased surveys have also taken a toll on people’s willingness to participate in legitimate, scientific surveys.

In addition, each specific mechanism for collecting survey data has its own problematic aspects. In-person surveys are hampered by a distrust of strangers, along with the new, gated residential communities and security-conscious apartment buildings. Telephone interviewers are hampered by answering machines, caller ID, cell phones and the difficulty of finding people at home. The response rate of mail surveys is affected by the lack of personal encouragement (which interviewers provide), busy schedules, an increasing volume of “junk mail” that gets ignored and the tendency to find longer surveys daunting when they are presented on paper. Similarly, creating random samples for e-mail or Internet surveys is difficult, and people find it easy to turn down requests for participation.

As a consequence of declining response rates and other factors, costs are rising—for conducting surveys, maintaining the resulting data and making them easily available to various user communities. Moreover, continuing investments in long-term surveys are often not as attractive to many funders as new research because the continuing commitment they represent can preclude investments in hot new areas. Consequently, long-term surveys—which become more powerful with each new

addition—are faced with reducing sample size or survey frequency, or finding new methods to track opinion.

Consequences of declining survey response rates for smoking prevalence estimates.

Am J Prev Med. 2004; 27(3):254-7 (ISSN: 0749-3797)

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BACKGROUND: Response rates have been declining in statewide tobacco surveys. This study investigated whether there was associated evidence of increasing bias in smoking prevalence estimates. **METHODS:** Demographic characteristics of respondents to tobacco surveys in Massachusetts and California were compared to population data in the early 1990s, when response rates were high, and in more recent years, when response rates were lower. State estimates of smoking prevalence at three times were compared with estimates from the Current Population Survey Tobacco Use Supplement (CPS-TUS), conducted by the U.S. Census Bureau. **RESULTS:** Under- and over-representation of population subgroups has not changed as response rates have declined. Smoking prevalence estimates from state surveys remain relatively close to the state-specific CPS-TUS estimates. **CONCLUSIONS:** There is no evidence that declining response rates have resulted in less accurate or biased estimates of smoking behavior.

Are non-responders in a quitline evaluation more likely to be smokers?

BMC Public Health. 2005 May 23;5(1):52. [Links](#)

Tomson T.; **Bjornstrom C.;** **Gilljam H.;** **Helgason A.** Stockholm Center for Public Health, Tobacco Prevention, Box 175 33, 118 91 Stockholm, Sweden. tanja.tomson@sll.se

BACKGROUND: In evaluation of smoking cessation programs including surveys and clinical trials the tradition has been to treat non-responders as smokers. The aim of this paper is to assess smoking behaviour of non-responders in an evaluation of the Swedish national tobacco cessation quitline a nation-wide, free of charge service. **METHODS:** A telephone interview survey with a sample of people not participating in the original follow-up. The study population comprised callers to the Swedish quitline who had consented to participate in a 12 month follow-up but had failed to respond. A sample of 84 (18% of all non-responders) was included. The main outcome measures were self-reported smoking behaviour at the

time of the interview and at the time of the routine follow-up. Also, reasons for not responding to the original follow-up questionnaire were assessed. For statistical comparison between groups we used Fischer's exact test, odds ratios (OR) and 95% confidence intervals (CI) on proportions and OR.

RESULTS: Thirty-nine percent reported to have been smoke-free at the time they received the original questionnaire compared with 31% of responders in the original study population. The two most common reasons stated for not having returned the original questionnaire was claiming that they had returned it (35%) and that they had not received the questionnaire (20%). Non-responders were somewhat younger and were to a higher degree smoke-free when they first called the quitline.

CONCLUSION: Treating non-responders as smokers in smoking cessation research may underestimate the true effect of cessation treatment.