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Increasing Low Income Callers' Access to and Utilization of the Colorado QuitLine

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Executive Summary

Over the last two decades, Colorado has been successful in reducing tobacco use. Fewer Coloradans smoke, fewer youth are picking up the habit, and those who smoke are smoking fewer cigarettes. The percentage of Coloradans that smoke has dropped from 20.4% in 2002 to 17.7%. While population gains have been made, over 700,000 adult Coloradans continue to smoke. The recent Colorado Department of Public Health and Environment (CDPHE) health disparities report, *Exploring Health Equity in Colorado's 10 Winnable Battles*, continues to assert a need to reduce statewide tobacco use. To do so, Colorado must increase its focus on at-risk populations for tobacco-related health disparities. CDPHE has long recognized that effective state-funded cessation services are not equally available or accessed by all populations. A cornerstone of Colorado's tobacco cessation strategy for low-income smokers and other high priority populations has been its QuitLine service. Since the inception of the Colorado QuitLine in 2002, CDPHE has contracted with National Jewish Health (NJH) to administer the state's telephonic tobacco cessation service. Quitlines are a primary tobacco cessation resource with demonstrated effectiveness. Telephonic cessation services have further demonstrated the potential to overcome common barriers to access such as transportation and cost, successfully extending the reach of more traditional programs. At the same time, barriers to using quitlines do widely exist, and far too few smokers avail themselves of this service. While no tobacco cessation service taken alone is a panacea, perfect for all populations and at all times, CDPHE and NJH recognize there may be quitline innovations that will increase utilization among hard-to-reach populations, particularly low-income smokers or smokers living in poverty.

Telephonic tobacco cessation counseling is a ubiquitous resource, theoretically capable of overcoming known barriers to access care for low-SES populations. Cost of care, temporal availability, and geographic proximity are the three most commonly cited barriers to accessing care. Quitlines are free to the user and can be accessed from any phone using a national number, 1-800-QUIT-NOW, which redirects the caller to the quitline in his or her state. Tobacco cessation counseling is best complemented by cheap and easy access to cessation pharmacotherapy; and most quitlines offer free or subsidized cessation medications to callers. Despite media campaigns raising awareness of quitlines, in Colorado and elsewhere, many smokers remain unaware of the QuitLine's services, and those that are aware are still more likely to attempt to quit tobacco without accessing available support. This trend is specifically prevalent among low-SES and other at-risk communities. It is widely recognized that despite Colorado's QuitLine surpassing national figures in both awareness and reach, disparities in outcomes continue to rise among this group and that there are improvements that can be made. The following study identifies specific barriers faced by low-income smokers to accessing and effectively utilizing the Colorado QuitLine and makes recommendations on strategies to help eliminate or reduce those barriers and thus decrease the growing disparities in health outcomes for this population.

The University of Colorado, Behavioral Health & Wellness Program (BHWP) conducted an evaluation of current quitline services for low income smokers to identify both primary barriers to Colorado QuitLine use and possible adjustments, community resources, or new tactics that may assist in overcoming identified barriers. BHWP identified several barriers to access and utilization of the Colorado QuitLine and synthesized recommendations from four sources of data: an extensive literature review, analysis of recent QuitLine call data (n=26,857), several, national key informant interviews (n=18), and a focus group made up of low-income QuitLine callers (n=15) who had agreed to be a part of follow-up studies.

Barriers to access were found to be grouped into three categories: barriers endemic to low-SES populations, systemic barriers, and barriers specific to quitlines.

Barriers endemic to population

- Extra difficulty targeting low-income smokers through media and marketing. Changing addresses and phone numbers.
- Criminal justice system involvement.
- Lack of trust.

Systemic barriers to access

- Marketing/outreach is lacking.
- Lack of coordination between state agencies.
- Lack of provider education.

Barriers specific to quitlines

- The nature of telephonic counseling.
- Non-empowering marketing.
- Bad news travels fast.
- Long demographic call.
- Pre-authorization requirements.
- Staff skillset.

To address these issues, BHWP synthesized the following six recommendations:

1. **Facilitate community continuum-of-care partnerships for low-SES callers:** The QuitLine should provide its services in direct coordination with existing healthcare and public health agencies in low-SES communities. With CDPHE support, the QuitLine and community partnerships can create bi-directional, regional hubs for evidence-based cessation services.
2. **Disseminate continuum-of-care messaging:** CDPHE should promote a core message that multiple cessation pathways, which include the QuitLine and community healthcare providers, are necessary to increase quit attempts and cessation rates.

3. **De-mystify quitlines through interdisciplinary provider education:** Callers and community partners need a cohesive and seamless description of the QuitLine including the relationship between the QuitLine, community care providers, CDPHE, and HCPF.
4. **Outreach to Medicaid enrollees:** An interdepartmental understanding regarding mutual roles and responsibilities for outreach to Medicaid enrollees regarding available tobacco cessation benefits needs to be both developed and implemented.
5. **Review Prior Authorization Procedures:** Currently there are two types of prior authorization needed to receive services from the QuitLine that are noted barriers to care. CDPHE, HCPF, and the QuitLine need to review these requirements to determine if both treatment pre-authorizations are necessary and/or how the preauthorization process might be streamlined.
6. **Identify the most effective technology:** CDPHE and the QuitLine should review which technological platforms are most effective for reaching and sustaining low-income smokers in tobacco cessation services.

Conclusions

Colorado's QuitLine is a critical component of a continuum of resources to help vulnerable smokers quit. The QuitLine has the ability to offer services statewide at an affordable cost and with proven cessation outcomes. However, telephonic services have limits and there are barriers to accessing these services. As overall tobacco use rates decline, CDPHE and the QuitLine must adjust strategies for reach to the demographics of individuals that continue to smoke at disproportionate rates, generally represented by low-income smokers. Colorado should consider several promising approaches toward most effectively serving the needs of at-risk populations, including active partnerships between state departments, strengthening core messaging, community education regarding quitline services, cultivating community healthcare and neighborhood-based partnerships, developing peer networks, innovative technology, and reaching out directly to potentially eligible patients.

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Section I. Introduction and Purpose

Over the last two decades, Colorado has been successful in reducing tobacco use. Fewer Coloradans smoke, fewer youth are picking up the habit, and those who smoke are smoking fewer cigarettes. The percentage of Coloradans that smoke has dropped from 20.4% in 2002 to 17.7% in 2012 (Behavioral Risk Factor Surveillance System [BRFSS], 2012). As a comparison, over that same period nationally, smoking has dropped from 23.1% to 19.6% (BRFSS, 2012). Colorado currently ranks 21st among the states. Among Colorado youth (ages 12-17), the smoking rate is 10.63% or ranked 30th nationally (National Survey on Drug Use and Health, 2012).

AIM:
Identify barriers among Colorado's low-income smokers to accessing the Colorado QuitLine and recommend strategies for increasing these individuals' utilization of available telephonic tobacco cessation services.

While population gains have been made, over 700,000 adult Coloradans continue to smoke.¹ The recent Colorado Department of Public Health and Environment (CDPHE) health disparities report, *Exploring Health Equity in Colorado's 10 Winnable Battles*, continues to assert a need to reduce statewide tobacco use. To do so, Colorado must increase its focus on at-risk populations for tobacco-related health disparities. CDPHE has long recognized that effective state-funded cessation services are not equally available or accessed by all populations. While the largest number of smokers is Caucasian, other groups are disproportionately represented among smokers, including Native Americans (29.3%) and African-Americans (23.4%) (The Attitudes and Behavior Survey on Health [TABS], 2012). Other characteristics that place individuals at significantly higher risk of tobacco use include belonging to a sexual minority or having a mental illness or other addiction. **A base issue that cuts across all other demographics of smokers is having a low-income or living in poverty.**

Nationally, individuals living with low incomes:

- Suffer greater levels of dependence on tobacco;
- Lack access to evidence-based tobacco cessation treatment;
- Are less likely to adhere to available treatments;
- Are more likely to be the targets of tobacco-industry marketing;
- Have poorer cessation outcomes when compared to the general population.

(Hiscock, Bauld, Amos, Fidler, & Munaf, 2012; Colorado Community Coalition for Health Equity, 2010)

A cornerstone of Colorado's tobacco cessation strategy for low-income smokers and other high priority populations has been its QuitLine service. Since the inception of the Colorado QuitLine in 2002, CDPHE has contracted with National Jewish Health (NJH) to administer the state's telephonic tobacco cessation service. Quitlines are a primary tobacco cessation resource

¹ Calculation based on US Census Bureau adult population estimates for 2013 and the latest adult smoking prevalence rate from the Behavioral Risk Factor Surveillance Survey.

with demonstrated effectiveness (Anderson & Zhu, 2007; Stead, Hartmann-Boyce, Perera, & Lancaster, 2007; Zhu et al., 2002). Telephonic cessation services have further demonstrated the potential to overcome common barriers to access such as transportation and cost (Zhu, Anderson, Johnson, Tedeschi, & Roeseler, 2000), successfully extending the reach of more traditional programs (Zhu, et al., 1995).

At the same time, barriers to using quitlines do widely exist, and far too few smokers avail themselves of this service (Gilpin, Emery, & Berry, 2001). In Fiscal Year 2009, only 1.2% of tobacco users accessed telephone quitlines, and a median of 0.7% of tobacco users received evidence-based services through quitlines, i.e., counseling or medications (Morris, 2010). Acknowledged barriers to quitlines include insufficient funding for promotions and services, access to telephones, as well as potential distrust of the quitline staff's intentions (Solomon et al., 2009).

While no tobacco cessation service taken alone is a panacea, perfect for all populations and at all times, CDPHE and NJH recognize there may be quitline innovations that will increase utilization among hard-to-reach populations, particularly low-income smokers or smokers living in poverty. To that end, the University of Colorado, Behavioral Health & Wellness Program (BHWP) conducted an evaluation of current quitline services for low income smokers to identify both primary barriers to Colorado QuitLine use and possible adjustments, community resources, or new tactics that may assist in overcoming identified barriers.

The remainder of this report will explore these themes before closing with recommendations offered to assist CDPHE and NJH to address challenges and continuously improve services to those Coloradans facing some of the most significant tobacco-related health disparities.

Section II. Methods

BHWP completed an extensive literature review, conducted key informant interviews and focus groups, and analyzed QuitLine data to identify barriers and formulate recommendations for this report. Methods are described below, followed by sections detailing the findings from each evaluation strategy.

Literature Review: The existing evidence base and literature was scanned on low-SES/low-income utilization of the quitline and barriers to access. This included extensive PubMed searches for “quitline” or “telephonic counseling” and “low-socioeconomic,” “low-SES,” “poverty,” “disadvantages,” “barriers,” “African-American,” “Hispanic,” “Latino,” “Native American,” “low-income,” “blue collar,” “working class,” “LGBT,” and “LGBTQ.” BHWP also reviewed sources from the North American Quitline Consortium, as well as Colorado specific sources such as previous evaluations conducted for CDPHE.

Colorado QuitLine Data: We obtained data on 46,016 Colorado QuitLine intake calls from 37,888 unique individuals. Intake assessments were completed between October 1, 2011 and March 30, 2014. For those individuals with two or more intake records, only their most recent intake was used for the current analyses. Twenty individuals were excluded from these analyses because of undisclosed gender. For the purposes of this report, a low-income client was identified by self-reported health care coverage through Medicaid or a self-report of having no health care coverage at the time of intake. Callers who fell into this low socioeconomic status (SES) group made up more than two-thirds (n=26,857; 15,637 women, 11,220 men) of the total sample (Appendix A). The remaining 11,011 callers (6,100 women, 4,911 men) reported having private health insurance or Medicare (with or without supplemental coverage). QuitLine callers provided information on their age (at intake), gender, racial/ethnic group, and highest level of education obtained. Colorado QuitLine cessation outcomes have not been evaluated for the last three years so we were unable to make comparisons outside of the demographics captured during intake.

DEFINITION:

Low socioeconomic status (low SES)

a composite variable typically made up of economic status (income, receipt of Medicaid), social status (educational level), and occupation

Low income

an individual whose family's taxable income for the preceding year did not exceed 150 percent of the poverty level amount

Key Informant Interviews: In late 2013, BHWP conducted interviews with 18 key informants (Appendix B). The interviews spanned five states (AZ, CA, CO, OR, and WI) and included quitline service providers, analysts, researchers, community tobacco cessation experts, and state

tobacco control leadership. Semi-structured questions guided the interviews (Appendix C). Key informants were asked to identify barriers and facilitators to quitline utilization among smokers who were low-income or Medicaid enrollees.

Focus Groups: Over the course of three days in April 2014, BHWP conducted a series of telephonic focus groups with Colorado citizens enrolled in Medicaid who had called the Colorado QuitLine to aid them in a quit attempt. Colorado QuitLine provided BHWP a list of all the callers to the QuitLine who had agreed to take part in future evaluations. BHWP staff divided that list into 4 groups, (young men (ages 18-24), young women (ages 18-24), ethnic/minority men, ethnic/minority women) and randomized them. From those randomized lists, BHWP staff recruited 40 former and current tobacco users, of which 15 participated in the calls. Participants were informed at the invitation and again upon entering the call that BHWP did not represent the QuitLine, that caller information would be protected and anonymized, and that responses would be collected into a report for the CDPHE. Participants received a \$10 gift card to Walmart for their participation (See Appendices C and D for focus group scripts).

Both key informant interviews and focus groups were digitally recorded. BHWP then analyzed interviews and focus groups to identify emergent themes.

Section III. Literature Review

Tobacco use, and smoking in particular, remains the leading contributor to premature mortality and preventable morbidity in the United States (United States Department of Health and Human Services [USDHHS], 2014). While all-cause mortality has decreased over the last 50 years, deaths from chronic obstructive pulmonary disease (COPD) have continued to rise (Kim & Criner, 2013; Petty, 2006). Despite rapid declines in smoking prevalence rates in the wake of the over-the-counter availability of nicotine replacement therapy in 1996 and the Tobacco Master Settlement Agreement (MSA) in 1998, tobacco use is still responsible for nearly half a million deaths in the United States each year (USDHHS, 2014); and, nearly 43 million Americans remain smokers. This population is disproportionately Native American/Alaskan Native, African-American, and low-income Caucasian. In fact, across demographic groups whether divided by racial, ethnic, gender, or sexual preference, the power of socioeconomic status is obvious. As a defining characteristic of high-income countries, disparities between socioeconomically disadvantaged groups and the general populations exist not just within the United States but around the world (Brown, Platt, & Amos, 2014; Hiscock, Bauld, Amos, Fidler, & Munaf, 2012). Quitlines, or telephonic counseling services, exist in all 50 states, in several territories and in other countries to serve the tobacco cessation needs of the most at-risk populations. But, low-income smokers generally underutilize this resource (Fildes et al., 2012).

Low-SES Populations

Socioeconomic status is a composite variable typically made up of economic status (income, receipt of Medicaid), social status (educational level), and occupation, although most studies rely on a single measure proxy (Adler et al., 1994). Closely intertwined with these variables are race, ethnicity, sexual orientation, gender identity, mental or behavioral health, physical ability, place of residence, homelessness, involvement with the criminal justice system, single parenthood, immigrations status, and other factors that determine an individual's role in society's explicit and implicit hierarchical structures (Adler et al., 1994; CDPHE, 2013; Hiscock et al., 2012). The most frequent proxies for SES are income and education, which, although limited, is a useful way for researchers to find and report the effects of low SES on health outcomes (Over et al., 2014). Medicaid status may also be used as a proxy measure because individuals must be low income and/or disabled to qualify.

In 2010, 15.1% of people in the United States lived at or below the poverty line—the highest rate in nearly 30 years (U.S. Department of Commerce, 2011). Like smoking, this number is not distributed equally across all populations. The poverty rate for those born in the U.S. was 14.4%, but 19.9% for foreign-born residents. African-American households were nearly three times more likely as non-Hispanic White households to be in poverty (27.4% versus 9.9%), while 26.7% of Hispanic households are in poverty. It has been hypothesized that when an individual is in two

(or more) discriminated groups the effect is synergistic. This is known as the double jeopardy hypothesis (Hanson & Chen, 2007), and it is observable in Colorado's smoking prevalence rate figures. Based on 2012 The Attitudes and Behaviors Surveys (TABS) on Health, those who are not low SES have a smoking prevalence rate of 9.4%, compared to 27% of Colorado's low-SES population, nearly three times as high (Community Epidemiology & Program Evaluation Group [CEPEG], 2014). While the rate of current smokers is only 17.8% in the general population (16.7% in Caucasian populations), the rate for African-Americans is 22% (Relative Risk = 1.3) and 19.8% for Hispanics (RR = 1.2). For Colorado's LGB population the risk is even higher. The relative risk of smoking for a low-SES LGB individual in Colorado is 2.3 (a population prevalence rate of 38.5%). More importantly, as health disparities between low-SES and non-low-SES groups widen, in Colorado the low-SES community is growing. Between 2001 and 2012, the percent of Coloradans identified as low-SES increased over 54% (from 32.2% to 49.7%) (CEPEG, 2014).

Characteristics of Smokers Who are Low SES

Tobacco-related disparities may be partially explained by factors related to general healthcare attitudes, knowledge, and behaviors. Studies have shown that compared to higher-SES individuals, low-SES individuals have lower health literacy scores, less health knowledge, less healthy attitudes, do not trust their doctors as much, are less compliant with their doctor's advice, and ultimately have worse health outcomes (Stewart et al., 2013), including more injuries as children, higher incidents of chronic childhood conditions like asthma, increased risk of heart disease and cancer, higher rates of disability, and premature death (Hanson & Chen, 2007).

Higher rates of smoking among the low-SES populations are associated with higher rates of addiction, more frequent exposure to psychological stress, and less adherence to pharmacological and behavioral cessation regimens. Lower-income, but not lower-education, is associated with lower motivation to quit. In addition to more exposure to more finely tailored advertisements, tobacco companies also undermine tax increases through targeted rebate opportunities (Brown-Johnson, England, Glantz, & Ming, 2014) and lower prices in disadvantaged neighborhoods (Daglish, McLaughlin, Dobson, & Gartner, 2013).

Factors correlated with reduced cessation rates and higher relapse among low-SES smokers include greater addiction/dependence, less compliance with treatment dosage or length, more stressful conditions at home, cognitive impairment and poorer mental/behavioral health, higher rates of hostility and lack of trust in the health care system, and targeted tobacco marketing (Adler et al., 1994; Hiscock et al., 2012). It appears that low-SES smokers have smaller social networks effectively reducing the chance to interact with other individuals quitting smoking (Hiscock et al., 2012). This reduces not only the support any current smoker has for their quit attempt, but it also reduces the incentive to quit altogether. Low-SES smokers further think that smoking prevalence rates are higher than they are in reality, and they are less aware of social

pressures to quit. It has also been found that healthcare providers are more reluctant to provide cessation services to low-SES patients (Blumenthal, 2007; Frazier et al., 2001).

Several researchers have also demonstrated neighborhood-level risks for individuals (Amos, et al., 2011; Cohen et al., 2000; Cohen et al., 2003; Haan, Kaplan, & Syme, 1989). In these studies, low-SES neighborhoods are identified either by physical degradation (e.g., boarded up windows, vandalism) or by income data. Living in a deprived neighborhood has predictably poor health outcomes even when individual characteristics (income, educational level, or health behaviors) are controlled.

Smoking Cessation among Low-SES Smokers

While the smoking prevalence rate is very high among low-SES smokers, these individuals attempt to quit smoking as much as or perhaps more than the general population. However, low-SES individuals successfully quit less often and relapse more often (CEPEG, 2014; Hiscock et al., 2012; Over et al., 2014; Morris, Burns, Waxmonsky, & Levinson, 2014). Data from the English Smoking Toolkit, which grades SES using a five-level scale, found that 20.4% of those in the highest grade economically were still tobacco-free a year after quitting, compared to 11.4% in the lowest grade, despite the fact that all had the same access to the same levels of National Institutes of Health care (Hiscock et al., 2012).

The effectiveness of various tobacco cessation interventions is well established. (See: Brown, Platt, & Amos, 2014; Carson, 2011; Fiore et al., 2008; Lai, Cahill, Qin, & Tang, 2010; Stead et al., 2013; Stead & Lancaster, 2005; and Stead & Lancaster, 2012). These interventions run from the individual level (e.g., the use of motivational interviewing techniques, prescription and pharmacological interventions) to the systems level (e.g., training healthcare professionals) to the population level (e.g., tobacco tax increases, mass media campaigns). Although several interventions have been found to successfully aid in the reduction of smoking prevalence rates, their success has had the undesirable outcome of widening the disparities between at-risk groups and the general population (Greaves et al., 2006; Over et al., 2014). This is true even of programs that were designed with low-SES groups in mind or were suspected of being more effective among low-SES populations.

The existing evidence suggests that effective policies for reducing gaps between low-SES and the general population are those that focus on recruiting low-SES individuals into smoking cessation programs, support the use of nicotine replacement therapy (NRT), and encourage adherence to pharmacological regimens and a greater number of behavioral counseling sessions. Several strategies including mass marketing campaigns, phone calls using targeted messages, and text messaging can be effective ways to increase enrollment in cessation programs (Bala, Strzesynski, Topor-Madry, & Cahill, 2013). It was found that adding multiple modes (e.g., adding text

message reminders), contacting enrollees multiple times, and tailored messages all drove enrollment figures higher. Although Bala and colleagues (2013) included 19 studies in their review, only one specifically measured the effects of a recruitment campaign tailored for ethnic minorities (Harris et al., 2003), and one that reported findings specifically for low-income smokers (Carlini et al., 2012).

Overall, Harris et al. found that adding a reactive recruitment method (in which a mass market campaign introduces the population to the program and urges them to contact the program to enroll) to a proactive recruitment method (whereby smokers were identified and contacted personally) was more effective than a proactive model alone (2003). Among ethnic minorities, more enrollees were recruited through the reactive phase of the trial. The reactively recruited enrollees were more likely to be eligible for the study and more likely to be enrolled. However, participants recruited reactively had significantly higher levels of income and education, had better health overall, and had lower indicators of depression or stressful events at home.

Another study found that 27% of ex-quitline users had remained tobacco free (Carlini et al., 2012). The 521 relapsed smokers were randomly assigned an interactive voice response (IVR) screening or an IVR screening plus an invitation to return to the quitline for additional services. The intervention group was 11.2 times more likely to return. Results did not vary by gender, race, ethnicity, or education.

In both studies, the potential for widening disparities by attracting similar numbers of quitters but maintaining status quo quit rates between groups is evident, especially in the Harris and colleagues (2003) study. However, what is also clear is that targeted recruitment, even after relapse, can be an effective tool in reaching and enrolling low-SES individuals.

One potential intervention that has proven to increase the number of people who quit smoking is training healthcare providers in how to perform smoking cessation interventions (Carson et al., 2012), but this has not yet been demonstrated for the low-SES population specifically. Even so, social support has been shown to be an important factor in quitting and healthcare providers are important components of a robust social network. This may be especially true for low-SES individuals that have access to a healthcare provider, since this population is known to have smaller social networks and fewer people reinforcing the harms of smoking and the physical, emotional, financial, and social benefits of quitting.

Higher levels of addiction are best addressed through FDA-approved pharmacological interventions. In particular, combination NRT and varenicline have been proven to be the most effective at helping people stop smoking; although, single NRT interventions and bupropion have also been proven to be more effective than placebo (Cahill, Stevens, Perera, & Lancaster, 2013). However, and related to motivation, the cost of these prescriptions are a potential deterrent to

seeking treatment, especially among low-SES smokers who do not have Medicaid or other insurance coverage.

In addition to telephonic counseling, other program strategies might include use of IVR platforms, text messaging, mobile apps, and the Internet. Some of these strategies have already been effectively tested: IVR for recruitment (Carlini et al., 2012) and intervention (Mahoney et al., 2014), and text messaging for recruitment (Bala et al., 2013). Mahoney et al. also found that low-income individuals were receptive of the idea of receiving intervention messages via text and phone.

Motivation to quit is reduced by the costs of quitting, seeking help from a physician and its related costs and then obtaining pharmacotherapy, either prescription or over-the-counter. On the other hand, motivation can be increased by offering incentives, primarily in the form of subsidized pharmacotherapy (Reda, Kotz, Evers, & van Schayck, 2012).

What is a Quitline?

A strategy for reaching a greater number of smokers is the provision of telephonic tobacco cessation services. The most common form of telephonic counseling is offered by quitlines which typically use structured counseling built on motivational interviewing methods. These services are offered in all 50 states, Washington DC, Puerto Rico, and Guam. They are also available in other countries around the world including Canada, Mexico, the UK, Australia, New Zealand and several Asian countries ("About NAQC," 2014). Several studies have shown that quitlines are more effective than minimal or no counseling or coaching (Cummins, Bailey, Campbell, Koon-Kirby, & Zhu, 2007; Fiore et al., 2008; Stead et al., 2013). There is some evidence of a dose effect with more calls being more effective than fewer calls in achieving continued abstinence rates (Stead et al., 2013).

In the U.S., all state and regional quitlines are linked by a single national number, 1-800-QUIT-NOW, which directs callers to the quitline in the region or state the call originates from. Most quitlines in the U.S. (98%) offer counseling five days a week, eight hours a day. Services are also offered on at least one weekend day at 92% of quitlines. Most provide the opportunity for multiple counseling sessions (92%). Except for the first call, which is initiated by the smoker (i.e., reactive), additional calls are proactive, initiated by quitlines counselors. Although quitlines offering proactive services typically allow for smoker-initiated calls as well. Quitlines offering multiple proactive sessions show a 56% increase in cessation rates compared to self-help (Stead et al., 2013). Counseling is offered in several languages depending on the serviced population needs and provider capacity (Fildes et al., 2012). In addition to a brief cessation intervention, most quitlines also offer literature and free or discounted NRT, normally the nicotine patch or nicotine gum. In 2014, the patch was offered by 48 U.S. quitlines, gum by 39, and lozenge by 28

("Free and Discounted Cessation Medication," 2014). Some quitlines also offer varenicline or bupropion. A physician, dentist, social worker, psychologist or other healthcare provider can either refer smokers or smokers can call the quitline directly.

The Colorado QuitLine, provided by National Jewish Health, administered by CDPHE through Amendment 35 to the state constitution, is recognized as one of the more robust quitline services. It offers personalized telephonic counseling to smokers seven days per week and 24-hour access to its website (COQuitline.org). Enrollees receive up to five proactive calls from counselors and can make as many additional self-initiated calls as they desire to the QuitLine. QuitLine counselors are trained in motivational interviewing techniques and regularly receive additional training on individual populations as well as on specific telephonic counseling topics. Enrollees may qualify for free or subsidized nicotine replacement therapy including the nicotine patch, gum, or lozenge. The Colorado QuitLine does offset the costs to the state through partnerships with several insurers in the state. Qualifying enrollees on Colorado Medicaid can receive up to two 90-day supplies of a single NRT including all FDA-approved over-the-counter aids or, with a prescription, bupropion. Unlike many states, Colorado also offers callers the option of receiving FDA-approved combinations of therapies.

Who Uses Quitlines?

Although significant variance occurs between states, quitlines reach a national average of between 1%-2% of current smokers in any given year (Schauer, Malarcher, Zhang, Engstrom, & Zhu, 2014). Only a few states, including Colorado, have reached or surpassed the 6% goal recommended by the CDC (Kauffman, Auguston, Davis, & Finney Rutton, 2010; Woods & Haskins, 2007), although such high figures tend to follow large mass media campaigns. The average range is between .01%-4.28% with a demonstrated relationship between usage and state spending on tobacco control programs. Australia has achieved as high as 11% reach (Miller, Wakefield, & Roberts, 2003; Siahpush, Wakefield, Spittal, & Durkin, 2007; Wilson, Weerasekara, Hoek, Li, & Edwards, 2012).

Callers to quitlines are more likely than the general public to be Caucasian (82%), women (60%), ages 41-60 (46%), have a high school degree (graduated or GED) or less (50%) and be uninsured or on government health insurance ("Who Uses Quitlines," 2010). Compared to other smokers they are more likely to be Hispanic or African-American (Burns, Deaton, & Levinson, 2011). Quitline callers tend to be more heavily nicotine dependent, have more extensive quit histories, and are more ready to quit than the general population, although they have less confidence that they will be able to do so (Prout et al., 2002). They are also more likely to believe that willpower is not enough, that NRT would be helpful, and they do not hold a "self-exempting belief," i.e., callers understood that they were not exempt from the harmful health effects of tobacco use (Tzelepis, Paul, Walsh, Knight, & Wiggers, 2012).

Nationwide 35% of smokers are unaware of the quitline (Kauffman et al., 2010). In 2008 in Colorado that number was approximately 50%. Of those who were aware of quitlines, nearly half of them (45.6%) had no intention to use one (Burns et al., 2011). Another quarter (26.1%) thought they may call, but not within the next six months. Breaking this down further, over half of Caucasian men (51.5%) and over three quarters of Latino men (76.9%) said they had no intent to call a quitline. And only 25% of Gay, Lesbian and Bisexual respondents thought a quitline would be helpful and intended to use the service at some point. It is worth noting that between the 2008 and 2012 TABS, due to significant effort by state agencies, awareness of the Colorado QuitLine increased nearly 50% to 74% (CEPEG, 2014). Intent-to-use the QuitLine was not measured in the 2012 round so whether the media campaigns affected smoker attitudes in this aspect is unknown.

Cumulatively nearly 75% of sampled smokers had no intention to use a quitline (Burns et al., 2011). This should be taken into consideration when judging the effective reach of quitlines. Being aware of quitlines is correlated with being a woman, and being unaware of quitlines is associated with being Black, non-Hispanic and making less than \$50,000 (Kauffman et al., 2010; Schauer, 2007).

Barriers to Quitline Utilization

There are clearly smoking disparities between races/ethnicities, as well as other demographics, in part due to differences in health attitudes and behaviors (Peretti-Watel, Haridon, & Seror, 2013; Stewart, 2013). Only a few studies have looked at the underlying factors that drive attitudes, behaviors, and associated health outcomes. In 2005, NAQC published *Quitline Operations: A Practical Guide to Promising Practices*, the culmination of several learning community-based conference calls. The guide identified broad, population-wide barriers preventing quitlines from effectively engaging with priority populations, including lack of trust, lack of credibility, limited resources, limited or no community knowledge and awareness of quitline services, and low community prioritization of tobacco cessation. NAQC recommended making strong relationships with community leaders in order to better understand the communities they were trying to reach. This guide noted that a “priority community” might differ depending on various regional factors. Certain racial or ethnic identities may be a subject of concern in one community, but in another perhaps sexual orientation and identity is the priority. Understanding the specific barriers that individual callers find important is critical to effectively serving those populations.

In a 2009 study, Solomon et al., developed a 53-item inventory of possible barriers that were then grouped into five classes: stigma, low appraisal of service, no need for assistance, poor fit with service, and privacy concerns. The 53 items were derived from a review of the literature about barriers and key informant interviews with 12 cessation experts. A later study focused on

residents of Arkansas' Mississippi River Delta region, a primarily African-American region. The study found three broad classes of barriers: lack of knowledge of the quitline, lack of trust, and numerous "root causes" of tobacco use (Sheffer, Brackman, Cottoms, & Olsen, 2011). Hidden fees levied after the fact were listed among the trust issues respondents had preventing them from calling the quitline. Among the numerous root causes were the overall poverty in the area and lack of jobs, both of which respondents said added to their stress. They also made reference to the Tuskegee experiments and a general distrust of the government and the citizens of Little Rock—the latter indicating a potentially generalizable distrust between rural residents and their urban counterparts. Several respondents made reference to individual characteristics, e.g., not being able to understand counselors' accents or to have theirs understood or that counselors would not understand their specific situation. Several listed privacy concerns, e.g., that their social security numbers and phone numbers would be shared, that those with criminal records would be discovered, or that creditors would find them once they were in the quitline database. In order to address the "root causes" of smoking, respondents recommended government-based strategies that address the educational, labor, health care access, and housing deficiencies of the area. Respondents noted that these were constant stressors in the area associated with nicotine dependence.

Together, the barriers in the three sources above (NAQC, 2005; Sheffer et al., 2011; Solomon et al., 2009) complement each other; however, differences between findings, as well as methodological differences call into question the generalizability of the analyses. Solomon and Sheffer's lists share little in common. "Low appraisal of service" can be mapped onto Sheffer's "lack of credibility" item. In both studies a reluctance to call a quitline is associated with the belief that the quitline service is substandard, ineffective, or inappropriate. "Lack of trust" appears on both Sheffer's and NAQC's lists of barriers. In Sheffer, "lack of trust" is related to a sense of potential betrayal, e.g., the quitline will share private information with bill collectors, marketing services, or law enforcement officials. Lack of trust is also related to systematic mistrust, potentially related to historical trauma or the belief that quitline counselors are fundamentally distinct from the caller, e.g., racially or ethnically, which appears similar to NAQC's "lack of trust" finding.

Recruitment Efforts

Quitline utilization is associated with recruitment campaigns, suggesting that additional money spent in raising awareness of the quitlines and the services they provide could be useful in closing disparity gaps between low-SES smokers and the general population of smokers. The Cochrane Library (Bala et al., 2013) published a review of the literature on the effect of mass media campaigns and found that overall they were effective at both recruiting smokers to a quitline program and at changing smoking behaviors, with some large-scale campaigns still

effecting behaviors and attitudes up to eight years after. Most were effective only during the campaigns with some additional benefits deriving from length and intensity. Few studies, however, have focused on the equity impact of such campaigns. Bala and colleagues (2013) found that overall campaigns have little or no success in attracting higher numbers of low-SES smokers. In a more recent review (Brown, Platt, & Amos, 2014), researchers found 30 studies, which they divided into two groups: those that focused on quitting and those that specifically promoted quitlines. Of those 30 studies, 8 had a desirable equity impact, 7 were unclear, 8 were negative, 5 were neutral, and 2 had mixed results with some ads having greater effect on low-SES populations than others. This suggests that not all ads are created equal. Highly emotive ads appear to do better with low-SES smokers (Durkin, Biener, & Wakefield, 2009) and ads specifically targeted at low-SES populations may be more effective than those aimed at a general population (Kennedy et al., 2013; Willems et al., 2012). For example, in spring 2012, the CDC invested in a nationwide mass marketing campaign called Tips from Former Smokers. This ad buy was designed to reach nearly 80% of smokers including television spots, radio spots, internet ads, radio ads, and billboards. In addition, the campaign placed ads in all US media markets, and there were additional buys in local markets with higher than average smoking prevalence rates. The campaign, which used highly emotive imagery focusing on the loss of quality of life (instead of focusing on mortality) were highly effective in convincing smokers to quit and in getting non-smokers to talk to friends and family members who smoke. According to a 2013 study by McAfee and colleagues, the CDC campaign resulted in an estimated 1.6 million additional quit attempts during the campaign and a conservative estimate of 100,000 successful quits (using previously established quit ratios). Importantly, the Tips campaign had positively disproportionate effects in specific communities. Young smokers, less educated smokers, and African-American smokers all saw bigger increases in quit attempts compared to older, more educated, Caucasian smokers. In New Zealand, adding graphic images along with the quitline telephone number increased awareness of the quitline across all SES groups, and the disparity in awareness between the highest and lowest groups narrowed (Wilson et al., 2012).

Section IV. Colorado QuitLine Data

Demographic Characteristics in the Overall QuitLine Sample

The QuitLine callers consisted of 57.4% women and 42.6% men. Callers ranged in age from 14 to 90 years (average = 42.6 years), though more than 80% of callers were between the ages of 25 and 60 years. Just over 2 in every 3 callers (67.9%) self-reported their racial group membership as Caucasian. Among racial minority callers, the largest group (7.1%) self-identified as African-American followed by Native American (1.2%). Nearly a quarter of the QuitLine callers reported a “Mixed” or “Other” racial identity; within that group, more than half of callers identified their ethnicity as Hispanic/Latino.

Nearly 43% of callers reported being single at intake and one-third of callers reported that they were currently married. About 19% of callers reported their marital status as divorced. One-third of callers had a GED or high school diploma; another third reported having completed some college, which included trade or technical school. The remaining proportion of callers fell at either end of the education continuum, with about half having a college degree and half having not finished high school.

Contrasting Men and Women in Low-SES and Non-Low-SES Groups

Age and Racial/Ethnic Identity. Tables 1 and 2 provide the distribution of age and racial/ethnic group affiliation in Colorado QuitLine callers, contrasting SES groups and gender. Callers in the low-SES group were substantially younger than those in the non-low-SES group by 8.7 years. However, within each SES group, the average ages of the men and women were not markedly different. The proportion of Caucasian callers in the two SES groups differed by 6%, with low-SES callers more likely to identify with a racial minority and with Hispanic ethnicity.

Table 1. Distribution of age of in contrasting SES groups (by gender)

Age Range	Low SES		Non-Low SES	
	Women	Men	Women	Men
≤17 years	0.4%	0.4%	0.2%	0.2%
18 to 24 years	12.3%	11.6%	5.2%	7.7%
25 to 34 years	25.9%	29.4%	13.1%	17.0%
35 to 44 years	21.0%	22.3%	15.0%	17.6%
45 to 54 years	24.4%	21.0%	25.4%	22.3%
55 to 64 years	14.5%	13.9%	23.7%	21.1%
> 65 years	1.5%	1.3%	17.4%	14.1%

Table 2. Distribution of racial and ethnic groups in contrasting SES groups (by gender)

Racial and Ethnic Group	Low SES		Non-Low SES	
	Women	Men	Women	Men
Caucasian	65.5%	66.6%	72.8%	72.1%
African American	7.5%	7.0%	6.7%	6.6%
Native American	1.4%	1.1%	0.9%	0.6%
Asian American	0.4%	0.6%	0.4%	0.9%
Mixed/Other Race	25.2%	24.6%	19.2%	19.8%
Hispanic Ethnicity	14.8%	14.7%	11.0%	11.7%

Marital Status. As shown in Table 3, non-low-SES callers were much more likely to be married than low-SES callers. Though women in both SES groups were more likely to be married than men, this difference was much more pronounced in the non-low-SES group. The proportions of divorced callers in the two SES groups were quite similar, with the men in both SES groups more often divorced than the women. While the low-SES callers were more often single than the non-low-SES callers, this difference may be due to the fact that low-SES callers are, on average, nearly nine years younger than their counterparts in the non-low-SES group. When compared with low-SES men, low-SES women were much less likely to report being single (44.3% vs. 51.3%) and more likely to be divorced (21.7% vs. 15.3%). The gender differences were mirrored in the non-low-SES women and men.

Table 3. Distribution of marital status in contrasting SES groups (by gender)

Marital Status	Low SES		Non-Low SES	
	Women	Men	Women	Men
Married	29.0%	31.1%	38.3%	45.6%
Divorced	21.7%	15.3%	21.9%	14.7%
Single	44.3%	51.3%	29.1%	35.8%
Widowed	4.0%	1.5%	9.9%	3.3%
Unknown/Refused	1.0%	0.7%	0.8%	0.7%

Educational Attainment. Table 4 describes the proportion of QuitLine callers with educational attainment ranging from < 9th grade completed to earning a college degree. Not surprisingly, non-low-SES callers had attained a higher level of education than low-SES callers, with about 10% higher rates of completing some college or earning a college degree. More than half of the low-SES callers had a high school education or less. Women in both SES groups had attained more education than their male counterparts; differences were most pronounced in the categories of high school graduate (%Men>%Women) and some college (%Women>% Men).

Table 4. Distribution of educational attainment in contrasting SES groups (by gender)

Educational Attainment	Low SES		Non-Low SES	
	Women	Men	Women	Men
< 9 th Grade	3.4%	3.8%	2.3%	2.9%
Grade 9 to 11	14.3%	13.1%	8.5%	8.7%
GED	9.4%	10.9%	4.8%	5.8%
High School Grad	23.1%	28.2%	23.8%	27.1%
Some College	33.9%	29.2%	35.6%	31.8%
College Degree	15.7%	14.5%	24.7%	23.4%
Unknown/Refused	0.2%	0.3%	0.4%	0.3%

Smoking Behavior. Table 5 provides a comparison of three measures of smoking behavior in women and men in the contrasting SES groups. Across the groups, approximately two-thirds of the callers reported smoking between 10 and 29 cigarettes per day. However, the low-SES callers were more likely to report smoking 30+ cigarettes per day than their non-low-SES counterparts. In both SES groups, men reported a higher number of cigarettes smoked per day than women, but the difference was modest (2-2.5 cigarettes per day).

Table 5. Smoking behavior and quit rates in low-SES and non-low-SES groups

Daily Smoking Amount	Low SES		Non-Low SES	
	Women	Men	Women	Men
0 cigs per day	4.4%	7.4%	5.5%	13.3%
1-9 cigs per day	16.5%	11.0%	16.9%	13.1%
10-19 cigs per day	33.1%	26.8%	35.5%	26.4%
20-29 cigs per day	33.4%	36.3%	31.9%	32.8%
30-39 cigs per day	7.7%	10.6%	6.0%	8.5%
> 40 cigs per day	4.8%	7.9%	4.1%	6.0%

Table 5 (cont'd). Smoking behavior and quit rates in low-SES and non-low-SES groups

Duration of Use	Low SES		Non-Low SES	
	Women	Men	Women	Men
< 6 months	0.2%	0.1%	0.2%	0.2%
6 months-1 year	0.3%	0.3%	0.2%	0.2%
1-5 years	6.4%	6.0%	3.5%	5.4%
6-10 years	10.4%	10.9%	5.8%	7.5%
> 10 years	82.5%	82.5%	89.9%	86.4%
No Response	0.3%	0.3%	0.3%	0.3%
Quit Attempts	Women	Men	Women	Men
None	10.1%	11.1%	7.1%	8.2%
1-2 attempts	34.3%	33.4%	30.8%	31.7%
3-4 attempts	26.4%	24.7%	27.5%	24.4%
5-6 attempts	13.2%	12.1%	14.5%	14.1%
7-8 attempts	2.8%	2.7%	3.5%	3.1%
9-10 attempts	4.4%	4.4%	5.1%	5.2%
11+ attempts	8.8%	11.7%	11.4%	13.4%

In the low-SES group, callers reported a shorter average duration of smoking. Again, this trend is likely influenced by younger age (on average) in this group. Though gender differences in duration of smoking were negligible in the low-SES group, women in the non-low-SES group had a slightly longer history of smoking than the men. Among the QuitLine callers as a whole, approximately 10% reported having never made an attempt to quit smoking. A similar proportion fell on the opposite end of the spectrum, reporting 11 or more attempts to quit. Though the differences were not dramatic, the non-low-SES group reported a greater number of quit attempts than callers in the low-SES group. Gender differences in the number of quit attempts within SES groups were not remarkable.

Mental Health Issues. To address mental health history in QuitLine callers, they were asked, “Do you have any mental health conditions, such as an anxiety disorder, depression disorder, bipolar disorder, alcohol/drug abuse, or schizophrenia?” The proportion of callers reporting that they suffer with one or more of these mental health conditions was strikingly similar across the SES groups.

However, about 14% more women reported a mental health condition when compared to men across both SES groups. When asked, “During the past two weeks, have you experienced any emotional challenges such as excessive stress, feeling depressed or anxious?” about half of all women and about 40% of all men responded “yes.” As shown in Table 6, the proportion of low-SES callers responding “yes” to this question was only modestly (~4%) higher than non-low-SES callers. Interestingly, when asked about whether or not those recent emotional challenges were “interfering with work, family life, or social activities,” rates of endorsement dropped by nearly half for all groups, ranging from 19.7% in non-low-SES men to 29.3% in low-SES women.

Just over 1 in 5 women in both SES groups reported that they believed that their mental health conditions or recent emotional challenges would interfere with their ability to quit smoking. Approximately 1 in 6 men reported that they anticipated this interference with their ability to quit. Though response rates did not differ between SES groups for this question, a younger age was associated with higher rates of endorsement for all mental health issues.

Table 6. Rates of mental health conditions and emotional challenges in SES groups

Mental Health Issues	Low SES		Non-Low SES	
	Women	Men	Women	Men
Mental Health Conditions ¹	48.4%	35.5%	48.0%	32.8%
Recent Emotional Challenges ²	51.6%	42.0%	48.7%	36.7%
Emotional Challenges ² Interfering with Life/Activities	29.3%	24.3%	26.5%	19.7%
Emotional Challenges ³ Interfering with Quitting	27.6% ⁴	24.3% ⁴	27.5% ⁴	24.7% ⁴

(1) Prevalence of mental health conditions was significantly greater in women in both SES groups.

(2) Age, sex, and SES group are all significant predictors of emotional challenges and interference with activities.

(3) Age and sex were significant predictors of the belief that emotional challenges would interfere with quitting.

(4) These percentages reflect the proportion of callers who (a) endorsed one or more of the previous 3 mental health screening questions, and (b) also endorsed a belief that their emotional challenges would interfere with their quit attempt.

Medical Conditions. QuitLine callers who expressed interest in utilizing NRT (59%) were screened to determine medical eligibility during their intake call. These callers were asked about chronic medical conditions including high blood pressure, diabetes, heart disease, and chronic obstructive pulmonary disease (COPD), which are among the most common chronic illnesses associated with tobacco use. Callers were asked, “Have you ever been told by a doctor or nurse that you have (e.g., high blood pressure)?”

Table 7. Rates of chronic medical conditions in contrasting SES groups

Medical Conditions	Low SES (n=15,291)		Non-Low SES (n=7,000)	
	Women (n=8,753)	Men (n=6,538)	Women (n=3,799)	Men (n=3,201)
High Blood Pressure ¹	19.1% ²	21.1%	26.6%	28.6%
Diabetes ¹	8.5%	6.9%	11.7%	11.7%
Heart Disease ¹	3.7%	3.8%	6.5%	6.7%
COPD ³	11.2%	7.1%	16.9%	12.5%

(1) Observed differences in prevalence rates between SES groups are largely accounted for by age of clients.

(2) Observed differences in prevalence rates between SES groups are influenced by sex over-and-above age.

(3) Age, sex, and SES group are all significant predictors of disease prevalence.

The proportion of callers reporting high blood pressure was about 7% higher in the non-low-SES group than the low-SES group (Table 7). Men were slightly (~2%) more likely to have been told they have high blood pressure than women in both groups. In fact, both the age and gender of clients account for the apparent differences between the two SES groups. The differences were less pronounced for a diagnosis of diabetes; rates were about 4% higher in the non-low-SES callers. Gender differences in rates of diagnosed diabetes were negligible in the non-low-SES group and modest (<2%) in the low-SES group. Though callers in the non-low-SES group more often reported a diagnosis of heart disease, this difference can also be accounted for by the fact that the non-low-SES group is older. Interestingly, COPD was the only chronic medical condition that women were more likely to report than men in each SES group. In fact, gender, older age, and low-SES were all significant predictors of a COPD diagnosis.

Section V. Key Informant Interviews

The 12 key informant interviews were analyzed for thematic content. Although key informants had diverse characteristics and represented multiple interests, several unifying themes emerged from interviews. Results fell into two broad categories: 1) Barriers endemic to the low-income population, and 2) Systemic barriers to access.

1) Barriers endemic to population

Reaching low-income smokers through media and marketing

Colorado, like many other states and federal agencies, has initiated campaigns targeting specific races/ethnicities and other at-risk populations. The success of these programs is reflected in the fact that some states' communities of color are over-represented among quitline callers. However, using proxies for low-income callers such as low educational levels and Medicaid enrollment, quitlines are not widely engaging and sustaining services to these individuals.

The state has invested a significant amount of resources into promoting the QuitLine to all Coloradans with specific attention paid to at-risk communities. In part, campaigns for other at-risk populations have created successful linkages to the existing communication infrastructures that many communities already possess. As examples, African-American populations have existing service communities, newspapers, radio stations, and television channels; as does Colorado's Hispanic/Latino populations. At a federal level, respondents attest to the resounding success of mass marketing campaigns (e.g., CDC, TIPS). During these television and radio blitzes, quitline calls increase dramatically.

While there is a strong indication that national media drives calls to the quitline, it is less clear if these methods work for the low-income population. As one interviewee noted, there is no "low income newsletter" by which Coloradans living in poverty could be reached. Given this limitation, there is some attempt in states like California to inform the low-income population of available quitline services by integrating messaging into state Medicaid materials and member communications. CDPHE, using funds from the American Recovery and Reinvestment Act, has in the past developed and disseminated some materials to both Colorado Medicaid providers and patients in regard to improvements in the tobacco cessation benefits. It was noted in interviews that this channel may be used in the future.

Changing addresses and phones

The most frequently discussed barrier to engaging the low-income population was invalid contact information. These individuals are often lost to contact due to changes in addresses and phone numbers. Due to incorrect contact information, among other issues, approximately 60%

of individuals referred to the Colorado QuitLine never receive an intake phone call (from CDPHE and Denver Health and Hospitals Datasets). It is the QuitLine's goal to contact every potential patient within 24 hours of receiving a referral whether that is a self- or provider-based referral (e-referral or Fax-to-Quit). However, after three attempts, the majority of referrals are dismissed and designated "unreachable." Unfortunately this category of "unreachables" is not broken down into more granular data, categorizing whether numbers were "incorrect," "never answered," or "disconnected." Some of these individuals are also probably not answering their phones because they did not recognize the incoming QuitLine number.

Limited cell phone minutes were a commonly cited barrier. Whether on limited or prepaid plans, minutes of cell phone use represent a cost to the patient transforming the QuitLine's "free" service into a *de facto* fee-based one. Because cell phone plans are not sold on an income-based sliding scale, these minutes represent a disproportionate share of the potential patient's income than it does for those in higher income situations. The length of the first call, up to 40 minutes if the first coaching session immediately follows intake, further exacerbates this potential barrier.

Criminal justice system involvement

An unfortunate reality of this population noted by many respondents was the increased exposure to the criminal justice system. While arrests, jail, prison, court, and probation all act as additional stressors for individuals and their families, the end result is often housing instability. Involvement with the criminal justice system is frequently unplanned and as such acts as an interruption in such scheduled activities as coaching calls from quitline counselors. One respondent mentioned as an illustration a client who could not take a prescheduled coaching call because she had to pick her son up from jail. Incarcerated individuals may become unreachable for months or even years at a time. It is also often the policy of the QuitLine to not mail NRT to congregate living environments such as halfway houses as these medications, at times, have been inappropriately intercepted and sold. But the Colorado QuitLine does have an alternative policy where it sends NRT when it is possible to work directly with the shelter or service to confirm delivery of receipt.

Trust

All respondents acknowledged that developing trust with the low-SES populations was a barrier to engagement. This was seen as a potential barrier to healthcare generally but also to the utilization of telephonic services. Compared to low-income Caucasians, Colorado's communities of color have less trust of the healthcare system overall and of primary care physicians in particular. This appears to be especially true of Native Americans and Hispanics which have the lowest trust of CDPHE's five disparately affected communities. Many low-income individuals utilize hospital emergency services, rather than community primary care clinics, for healthcare

needs. This is relevant to quitline utilization in that healthcare providers must first have a relationship with patients before they are able to make effective referrals to quitlines.

Telephonic counseling and typical quitline strategies may also be barriers to building client rapport. For example, most callers will speak with multiple quitline counselors over the course of counseling calls, which callers have reported as dissatisfying. Distrust can be mitigated by providing patients service providers who are perceived to be similar to them racially/ethnically, by increasing the number of interactions with specific coaches, by developing familiarity with interpersonal communications traits, and by aligning values and through demonstrations of caring. Some of these (demonstrations to caring, perception of ethnic familiarity) are hampered by the nature of telephonic counseling. Others are reportedly hampered by the QuitLine's staffing and call routing strategies.

2) Systemic barriers to access

Marketing/outreach is lacking

In addition to being a hard-to-reach demographic due to characteristics endemic to the low-income population, reaching these Coloradans is also hampered by Colorado's unique geo-demographic distribution. Approximately 85% of Coloradans live within a few miles on either side of I-25 in Colorado's Front Range. Eighteen of Colorado's 64 most wealthy counties have incomes above the state median. Of these, 10 counties (Douglas, Boulder, Broomfield, El Paso, Jefferson, Clear Creek, Gilpin, Arapahoe, Park and Denver) are within the Front Range area. The other 8 counties (Pitkin, Mineral, Hinsdale, San Miguel, Eagle, Summit, Routt, and San Juan) are dispersed across the Western Slope. The remaining 46 counties, both Western Slope and rural Front Range, in addition to being home to a larger share of Colorado's poor, are disproportionately home to Colorado's Native American and Hispanic communities. Due to the distances between them and low population densities, advertising dollars spent outside the I-25 beltway have lower reach per dollar spent. On top of this, the state spends significantly less on tobacco cessation programming, including marketing and promotion, than recommended by the CDC. The CDC recommends that Colorado spend 18% of all tobacco revenue (which includes excise tax revenue as well as funds received from the MSA) on tobacco programs (approximately \$53 million). However, Colorado dedicates none of its MSA dollars for tobacco control and only allocates 16% of its tobacco excise tax toward tobacco control programming (CDC, 2014). This fund only enables spending on tobacco control at less than half (46%) of the total CDC recommended amount.

Lack of coordination between agencies/organizations

Respondents generally reported little to no coordination between their agencies/ departments and community healthcare agencies or state departments involved with tobacco control. As a

salient case in point, there has been intermittent coordination between Colorado state departments in promoting tobacco cessation benefits generally and the Colorado QuitLine specifically. The Colorado Department of Health Care Policy and Finance (HCPF) is the agency responsible for administering Colorado Medicaid. With Medicaid expansion under the Patient Protection and Affordable Care Act (ACA), HCPF is well positioned to be an effective partner with CDPHE in helping Colorado hit its *Healthy People 2020* objectives especially for tobacco use (Liu, 2009; Tobacco Use, n.d.). Together, CDPHE and HCPF have been able to effectively increase tobacco cessation benefits through expanded cessation pharmacology and new tobacco counseling codes. But historically the barriers to an ongoing effective partnership have included staff turnover and therefore, loss of institutional memory, competing daily demands, loss of programmatic funding due to financial crises, and the slow pace of state rule-making and legislative change. Also, unlike other states such as California, HCPF doesn't pursue direct contact with Medicaid enrollees and instead only works directly with Medicaid providers such as Regional Care Collaborative Organizations (RCCOs). In comparison to most other states, this limits the available means of outreach to low-SES smokers through such avenues as mass mailing to Medicaid enrollees. There is also a pervading national lack of clarity between providers, quitlines, and state departments regarding Centers for Medicare and Medicaid Services (CMS) versus state level rules on issues such as pre-authorizations for over-the-counter NRT.

Community and hospital healthcare providers themselves appear often unaware of many of the tobacco-related changes in ACA and tobacco-related requirements of CMS's "meaningful use" criteria, as well as new guidance on elements of tobacco cessation services that must be included in the state's essential health benefit. Also, healthcare providers often have little knowledge of the Health Resources and Service Administration's (HRSA) standards regarding tobacco screening and treatment for federally qualified health clinics (FQHCs) or Joint Commission standards for hospitals. Similarly many healthcare providers are unaware of quitlines and are not up to date on any recent changes to Colorado QuitLine services, such as additions to the list of provided NRT. For instance, providers may still think of the QuitLine as a resource only serving Colorado's low-income pregnant mothers.

Public quitline service providers including NJH are members of the North American Quitline Consortium, sharing robust resources and academic partnerships. Even so these resources have not led to significant innovations in reaching the low-SES population. This was evidenced by respondents' difficulty listing specific cases of innovative approaches to increase reach and effectiveness for this population. That said, there are several states piloting partnerships between the quitline and primary care providers or between the quitline and state Medicaid office that show some promise of increasing utilization among low-SES smokers such as the work being done by the Wisconsin group and California Smokers' Helpline.

Lack of provider education

As one respondent said, “We don’t know what providers are telling their referrals; all we know is what callers say the doctors told them.” The sense of NJH QuitLine administrators is that either providers are unclear or uncertain what the QuitLine experience is like and are failing to communicate critical features of the process to their patients, or they are unable to express their knowledge in ways to adequately prepare callers for telephonic cessation services. The healthcare providers interviewed echoed this sentiment nearly unanimously. Providers expressed a desire to have QuitLine information in an easy-to-digest form. In response, the NJH currently offers tours for community agencies and is recently developing introductory videos for use by primary care physicians (PCPs) and/or their patients. State level respondents did acknowledge the difficulty in reaching PCPs to disseminate these resources. In short, many providers simply do not know what to tell their clients in order to accurately prepare them and efficiently put them at ease regarding their first call. This is particularly a barrier for low-income smokers and communities of color who—as previously discussed—may already exhibit distrust and be ill at ease in the medical context.

Barriers specific to quitlines

Telephonic counseling

The advantage of quitlines is also its largest potential weakness. Telephonic counseling can be delivered at much lower cost than face-to-face counseling and is convenient across a large geographic area. It allows counselors to reach clients that would otherwise be prohibitively distant. However, studies on the effectiveness of counseling stress the importance of the relationship that develops between the client and their counselor. The precise mechanisms of this rapport building are largely unknown but “non-specific” factors surface again and again. Body language, facial expressions, tone, open and nonjudgmental dialogue are all potentially critical. Despite QuitLine coaches’ training and experience, the nature of telephonic counseling and the necessities of managing busy call centers are rigid obstacles to developing rapport and trust between client and coach. The question posed to various respondents was whether such obstacles were greater among low-SES groups as compared to other callers.

All respondents acknowledged that long wait times between intake and the first coaching call caused some potential patients to abandon the service. They similarly recognized that not having dedicated counselors for each patient was a potential obstacle in engaging clients. In part, the success of the NJH protocol for pregnant women smokers is attributable to the use of coach consistency across all five calls during pregnancy as well as the four postpartum calls. The trade-off is that if a client needed coaching at a specific time and their coach was unavailable, then they may not receive the motivational intervention they needed in a timely manner.

There was agreement that telephonic counseling was appropriate across caller demographics. Respondents had heard anecdotes that quitlines might not be effective for some populations, but they felt that these anecdotes were unfounded based on available quitline data. Despite stories that telephonic counseling was inappropriate for both African-Americans and Native Americans, callers from both populations are over-represented based on state census figures. While these clients are calling, it is unknown if there are means to bolster effectiveness. With refinements in developing medical trust or refining protocols for more narrow demographic groups some gains might be made, not just in referrals/intakes, but also in outcomes. Over-representation could also just be evidence of the greater need in those communities.

Non-empowering marketing

Some respondents mentioned the quality of outreach especially to low-income individuals. It is recognized that members of disparately-affected communities suffer from historical trauma and often exhibit a lack of trust for authority figures. Respondents noted that past quitline marketing can sometimes be characterized as “less than empowering.” While tobacco dependence is an extremely difficult addiction to break, quitline marketing, at times, tends to reinforce helplessness instead of emphasizing the power to choose to quit.

Recent focus group studies on Colorado smokers’ knowledge of the risks inherent in smoking indicate that most understand the risks. They know that smoking is unhealthy and puts them and their children at increased health risk. There seems to be a lack of knowledge of how pervasive secondhand smoke can be, e.g., that rolling down car windows or using towels to block door thresholds is not enough to protect young children. Generally speaking, using advertisements as a means of educating smokers on the harms of tobacco may often be unnecessary and run the risk of being counterproductive either by desensitizing the viewer’s perception of the harm or by inducing a reactionary response to the ads.

On the other hand, respondents universally acknowledged that many smokers do not contact the quitline because they are uncertain what the counseling process involves, how long it will take, and what to expect in terms of the service. Respondents shared that quitline callers are often looking for easy access to NRT or other cessation medications, and are often less interested in counseling, and this might be even more the case in the low-SES population.

Bad news travels fast

Respondent acknowledged that quitlines suffer from the “bad press” that surrounds their services. Some of this bad press is simply the unfortunate reality of the nature of telephonic services. Most smokers cycle through multiple quit attempts. Each unsuccessful quit attempt has the potential to be psychologically and physically demanding on the smoker. When a quit attempt fails, one tendency is to blame the method rather than the addiction. Any negative

perceptions or anecdotes related to the quitline, whether valid or not, seem to be more quickly shared in communities in comparison to positive experiences. Successful quitters in essence disappear while unsuccessful quit attempts often remain in the forefront.

This marketing truth is compounded by the fact that the Colorado QuitLine itself is a constantly evolving service with changing contractual obligations. Quitlines are generally subject to changing demographics of smokers, changing volumes of calls, new laws, evolving evidence-base regarding counseling and cessation pharmacotherapy, and high staff turnover. Interviewees additionally shared that several of their clients had experienced delays in receiving their initial call, delays in getting called back within the window of time provided, and delays in receiving medication. So in addition to the given barriers in providing addiction treatment services, the quitlines face additional organizational complexities.

Specific to addressing barriers to Colorado's at-risk communities three areas showed up across the interviews: The long initial call, the requirement to obtain a pre-authorization for NRT, and the skill level of the coaches.

[Long demographic call](#)

The cost of using cell phone minutes has already been noted as a factor specific to low-income populations for whom cell phone minutes are a disproportionately heavy burden. But the cost of a long phone call is not measured only in dollars. A long phone call might also be made during a patient's short breaks from work. Because low-income individuals are more likely to be single parents, a long phone conversation may also represent a distraction from their children. Many intake questions are very personal and may be perceived as intrusive by those wary of divulging personal information, especially when that information seems irrelevant to their addiction, e.g., sexual orientation, other drug use, or mental health condition.

Respondents recognized a trade-off here as well. All recognized the demographic form was long, but none recommended a way to shorten it. Basic information is a requirement for sending NRT, and understanding the nature and history of the client's tobacco dependence is a necessary step to offering appropriate treatment. Respondents largely perceived this as a necessary barrier.

[Pre-authorization requirements](#)

In Colorado, QuitLine callers with certain health conditions (high blood pressure, heart disease, pregnant) are required to obtain a pre-authorization from a prescribing authority approved by the state in order to receive nicotine patches, gum, or lozenges. HCPF also requires Medicaid clients to fill out a Prior Authorization form in order to activate the client's Medicaid pharmaceutical benefit. All respondents acknowledged that either requirement acts as significant barrier, especially for low-income individuals, who are more likely to contact the QuitLine because they cannot afford to purchase these over-the-counter medications

themselves. Because of the nature of their employment, family arrangements, transportation issues, or other socioeconomic reasons, many low-income individuals and some racial/ethnic categories find it difficult to make an appointment to obtain a pre-authorization. The existence of this pre-authorization is not a CMS rule but rather a state HCPF rule. Currently, HCPF appears to require this pre-authorization in order to adequately track medications billed to the state Medicaid pharmacy benefit. Respondents were aware of several other states that did not require pre-authorizations or allowed pre-authorization to occur at pharmacies.

Staff skillset

NJH requires initial and continued training for its QuitLine coaching staff. This training includes four weeks of training prior to receiving their first call, far exceeding the requirements to become a certified Tobacco Treatment Specialist, and monthly trainings thereafter. Continued education often focuses on specific at-risk communities. Some call staff may have more experience and training with specific populations. However, currently calls are assigned to coaches as they become available in the call queue. With the exception of pregnant women who have dedicated, specifically-trained counselors, callers with specific demographics or chronic care issues are not routed to coaches with additional expertise or training with specific populations. For quitlines generally, this is often due to the technological platforms used, as well as contractually limited resources.

As an example of a potential barrier, one respondent shared that a client discontinued quitline counseling after a coach recommended coping strategies that were inappropriate given the client's neighborhood and economic status. In addition to not assigning coaches to clients based on established skillsets and client characteristics, clients may be forced to repeat information already delivered in previous calls. Clients may find this frustrating and, as previously noted, may be sensitive to the per-minute cost of each call.

Strengths specific to Quitlines

Significantly higher than average reach

CDPHE is nationally recognized as being a key national innovator in making the Colorado QuitLine a cornerstone of the state tobacco cessation strategy. Several national interviewees acknowledged that CDPHE served as a model for their states as they attempted to build public-private partnerships to address sustainability issues and that Colorado has served as a leader in obtaining and utilizing federal CMS matching funds for the QuitLine. NJH has streamlined and diversified their intake and coaching protocols both generally and with specific at-risk communities in mind. They have developed a highly trained and engaged staff. Over the last year they have attempted to re-engage community partners to ensure that referred patients are prepared for their initial call. In sum, key informants shared that the Colorado QuitLine is one of

the most robust quitlines in the country. It offers a full course of five coaching calls, allows patients unlimited inbound calls, and provides up to two full courses (8 total weeks) of FDA-approved cessation medications for Medicaid enrollees. Several years ago, CDPHE and NJH also collaborated on developing and piloting protocols for pregnant women that, because of its success, has been adopted in several other states.

Disproportionately higher participation of at-risk populations

Anecdotal evidence may indicate that telephonic counseling, such as the Colorado QuitLine offers, is inappropriate for certain communities. However, despite this evidence, the QuitLine serves a disproportionate share of Native Americans, African-Americans, and low-income individuals. It offers services in Spanish through its own staff and in any language through a contracted translation service. It also provides warm transfers of Asian callers to the UCSD's Asian Smokers' Quitline service which allows callers (smokers as well as friends and family members of smokers) to talk with counselors in Cantonese, Mandarin, Korean, or Vietnamese. While recent treatment outcomes are unavailable for all quitline callers, other national data does not suggest disparities in outcomes in comparison to Colorado.

Section VI. Quitline User Focus Groups Findings

Participants represented diverse backgrounds in regard to ethnicity/minority status, gender, marital status, and age (see Table 1 in Section IV). All callers were Medicaid enrollees. Most were cigarette users (14) and wanted help quitting (12) as opposed to “staying quit.”

This group of QuitLine callers is consistent with the literature reporting that callers are more addicted than smokers who do not call the quitlines. Twelve (12) callers were cigarette users; one smoked cigars. Twelve reported using cigarettes “every day;” over half (9) used their first cigarette within 5 minutes of waking, indicating high

Region	#	Municipalities	Population Range
Denver-Aurora-Lakewood Metropolitan Area	10	Littleton	< 50,000
		Arvada, Centennial, Lakewood, Thornton	50,000 – 200,000
		Denver, Aurora	> 300,000
Southern Front Range	2	Pueblo	50,000 – 200,000
		Colorado Springs	> 300,000
Northern Front Range	1	Fort Collins	50,000 – 200,000
Western Slope	1	Cortez	< 50,000
Eastern Plains	1	Trinidad	< 50,000

nicotine dependence. The range of cigarettes per day for every day smokers was 5-20; mean, 15. Fourteen of 15 had started smoking by the age of 20. Two had started at the age of 12—a year below the national average. The average age of starting in this group was 17. The oldest smoker had started when he was 30 years old while in prison.

Most callers (8) reported having been referred to the QuitLine by their doctor, two of which reported they had initially gone to see a PCP for a smoking-related health condition (asthma and COPD). Three were referred either during a prenatal screening or when applying for The Special Supplemental Nutrition Program for Women, Infants, and Children (*WIC*). In total 5 callers replied “yes” to having been diagnosed with diabetes, high blood pressure, COPD, or heart disease at the time they called. One participant told interviewers she had “a lung disease.” Another specifically referred to his emphysema diagnosis as the reason he called, saying “I know that, eventually, emphysema will take my life.”

The average quit attempt per smoker was 4⁺, with two reporting having tried to quit “11 or more” times. One respondent told reporters he had tried to quit “more times than you could count.” Eight smokers (4 men, 4 women) reported using no cessation aids; 1 used nicotine gum; 2 used a combination of patch and gum, 1 used a nicotine patch, and 1 was using an e-cigarette. Only one

* Quit Line data divides quit attempts in ranges (1-2, 3-4...11 or more). For purposes of calculating a mean 1-2 was coded as 1.5 and 11 or more was coded as 11. So the estimate here could be lower than the actual figure.

respondent knew before calling the QuitLine they were interested in using a specific cessation aid (nicotine patch) because a relative had used the same method and it had “worked for them.” The remaining callers who used NRT did so at the recommendation of QuitLine counselors and trusted their advice on which to use. All of the women given NRT through the QuitLine were provided the nicotine patch. One who never received any NRT was hoping to eventually receive the nicotine gum. One focus group participant had a negative reaction to using the patch overnight and told interviewers she wished she had been told of that potential side effect. Another participant reported having been surprised to find out that nicotine gum “isn’t like regular gum.” The other respondents reported overall positive effects of NRT on their attempts to reduce or quit. Most callers had not quit and told interviewers they still wanted to quit. One was afraid he had simply transferred his addiction from cigarettes to the gum. Despite not having quit, NJH labels their accounts “closed.” The data does not include information on why an account was closed, but at least some of the respondents completed their five calls, and some, by their own admission, had become unreachable by not answering calls from counselors.

Few callers reported a negative overall experience with the QuitLine. Some callers did report that they had trouble being reached by the QuitLine or finding the time to talk to counselors. One participant reported she was “never called back.” Of those that talked to QuitLine staff, all reported finding the counselors pleasant and skilled. Several participants noted that the counselors were “very nice,” “exceptionally nice” and, in one instance, “more empathetic than” anyone he had ever worked with during previous quit attempts, including clinicians and a private cessation coach.

On the other hand, most reported that the advice they were given was inappropriate or useless. One male caller thought talking to the counselors was “a waste of time” because it was the same advice over and over. A female participant felt that the advice to “go somewhere else and breathe” to help her deal with her urges made them worse. “I was just standing there alone and couldn’t think of anything else but wanting to smoke.”

Participants were asked to identify any advice they had been given that they used. Most respondents who remembered specific advice recalled being told to chew gum or use a toothpick to help with the oral habits associated with cigarette smoking. One recalled being told that urges only last a set amount time and that these should decrease over time. All callers who had ordered NRT through the QuitLine reported receiving their medications “on time” or “very quickly.”

Most respondents would recommend the QuitLine to friends and family members they knew who used tobacco. There was no difference in this response based on ethnicity or gender. Those who felt the QuitLine would not work for friends and family members attributed its

ineffectiveness to individual characteristics of those smokers, e.g., too addicted, not ready to quit.

Participants had very few recommendations for improvements that the Colorado QuitLine could consider. Among the limited responses in this category were “more educational material” and “try to call more often.” One participant thought that using more “scare tactics” would be effective. Another wanted reminder materials to hang in their house. One participant thought it was “weird” to talk to multiple counselors (as opposed to a single, dedicated counselor). One participant wanted a list of other, supportive resources, for example “a place we can go.”

Section VII. Recommendations

As public tobacco control dollars decrease over time, it is imperative that federal programs and states continue to direct funds to low-SES smokers. While tobacco use has declined for some demographics, there continues to be a high smoking prevalence among low-SES individuals. While quitlines are potentially a valuable resource for this population, telephonic cessation services have predominately assisted individuals who are the easiest to reach, motivated to change, and most successful in their quit attempts (NAQC, 2014). Simply driving more people to use quitlines is not likely to end current disparities unless new strategies are employed to reach populations that have historically been unaware and/or underutilized quitline services. Insufficient reach and success patterns within low-SES communities suggests the need for continuing innovation. To reach low-SES smokers, quitlines, public health agencies, healthcare providers, and community leaders must collaborate to reach smokers where they are, understand these individuals' stories, tailor interventions to their needs, and build community trust. To these ends, the following recommendations are based on synthesized findings across a literature review, analyses of NJH data, key informant interviews and QuitLine user focus groups.

1) Facilitate community continuum-of-care partnerships for low-SES callers

The QuitLine should provide its services in direct coordination with existing healthcare and public health agencies in low-SES communities. With CDPHE support, the QuitLine and community partnerships can create bi-directional, regional hubs for evidence-based cessation services.

1.a. Systematically identify priority low-SES communities across the state, as well as healthcare and public health agencies in these communities that will be early adopters for collaborative efforts. Demonstrate and scale-up system redesign efforts that focus on increased utilization of the QuitLine across these early adopter sites. CDPHE and technical assistance providers might further support creation of regional cessation hubs through consultation and training regarding system redesign.

1.b. Identify and then outreach to employers, trade groups, and workforce development centers in priority low-SES communities that might be a conduit of information regarding available QuitLine services.

1.c. Explore evidence-based and promising practices for utilizing advocacy organizations and peer specialists (e.g., navigators, community health workers) to establish and sustain relationships between the QuitLine and statewide communities.

1.d. CDPHE can provide clear directives to their grantees on expectations for how they will promote the QuitLine and integrate related system redesign into community-based cessation initiatives.

Low-income smokers are frequently not receiving the information/education they need to develop appropriate expectations for their quit attempts and the effective use of QuitLine services. Medical trust is a concern, and social supports play an integral part in helping individuals adjust their health-related behaviors. The QuitLine itself, although a potentially important ally in any quit attempt is not sufficient in itself. The QuitLine, even according to ardent advocates, best acts as a community treatment extender—a caring and professional motivator that augments supports such as friends, family, peer groups, healthcare systems, and other community networks.

CDPHE will need to continue to determine how best to fund and foster innovative partnerships between state level services such as the QuitLine and low-SES communities. Presently, such partnerships largely fall outside of NJH’s contracted scope of work. Moreover, while CDPHE broadly funds county public health agencies, many Colorado public health agencies are not well educated regarding QuitLine services themselves, and have limited relationships with healthcare agencies and local business outside of tobacco-free policy initiatives.

While in some regions, public health agencies might be the most appropriate hub of information, in other regions the most effective partners might be Regional Care Collaborative Organizations (RCCOs), Accountable Care Organizations (ACOs), federally qualified health centers (FQHCs), behavioral health centers, hospitals, advocacy groups, peer advocacy/navigator agencies, and business organizations (e.g., Small Business Administration Offices). For some of these healthcare systems like RCCOs or Behavioral Health Organizations (BHOs), CDPHE can advocate with other state departments such as HCPF and the Office of Behavioral Health that tobacco cessation services be more fully integrated into contractual/monitoring expectations.

Outreach to low-income individuals and groups will most effectively be done, as key informants repeatedly mentioned, by meeting low-SES clients where they are. Quitline data suggests that any new continuum-of-care partnerships should attend to demographics associated with low-SES smokers such as younger, less educated callers. The most frequent QuitLine callers remain Caucasian women across SES categories, but low-SES, male smokers are highly addicted and may warrant different protocols and messaging. This may also be the case for persons with behavioral health conditions, and other races/ethnicities, particularly Latino smokers who make up the second largest racial/ethnic group currently using the QuitLine.

Advocates embedded in the community can more appropriately address many cultural and demographic tobacco cessation barriers. Advocates/peers involvement has the added benefit of

helping overcome the issue of medical trust. Community organizations can act as advocates and regional liaisons for the QuitLine, helping promote the work it does. Importantly, community advocates act as a carrier of success stories to counter the limited, yet potentially more provocative cases, where individuals had negative QuitLine experiences. Community advocates might further breakdown barriers to access through actions such as providing telephones that may be used to contact the QuitLine. They may act as a point of contact which the QuitLine can use to locate patients, and may provide a stable address for mailing cessation medications. To further increase community cessation resources, many advocates may also be receptive to become trained Tobacco Treatment Specialists.

Progress may also be made by identifying and partnering with employers that hire primarily low-income individuals. The QuitLine and CDPHE might then work directly with those employers and potential trade groups. Restaurants were specifically noted, but a more comprehensive list could be generated. Low-income individuals also have certain life patterns that make accessing certain services more likely than non-low-income individuals, and these service sites could be used as a point of dissemination for state cessation resources. Check cashing businesses were mentioned as one example.

2) Disseminate continuum-of-care messaging

CDPHE should promote a core message that multiple cessation pathways, which include the QuitLine and community healthcare providers, are necessary to increase quit attempts and cessation rates.

2.a. Standardize messaging through different media stressing that every provider has a role in both referring to the QuitLine and providing some level of community-based tobacco cessation services. It should be emphasized that “Tobacco dependence is a chronic relapsing condition and that multiple cessation aids will increase cessation attempts and successful quits.”

2.b. CDPHE, QuitLine, and community agencies can mutually determine how to improve referrals to community cessation services through enhancements to the searchable statewide database or similar resources.

The notion of quitlines as treatment extenders, as one of several resources that smokers should use, should be a core message for promotional materials and messaging. While several state quitlines have demonstrated an ability to increase reach to smokers overall and rates increase significantly during media campaigns, there is no evidence to suggest that low-SES smokers will increase calls to the QuitLine without community-based prompts. Sustained reach to low-SES populations may be the longer-term result of strong QuitLine-community relationships that reinforce access to multiple cessation resources. Consistent messaging might reinforce that all

healthcare systems and providers have ownership of reducing tobacco use that extends beyond only referral to the QuitLine. Also, mass media campaigns such the Tips from Former Smokers Campaign further suggests that highly emotive advertising which might be selectively deployed in low-SES communities has proven ability to increase QuitLine calls.

The state and QuitLine may also strengthen access to care by encouraging utilization of community-based resources. For example, the Wisconsin quitline provides a list of local resources, electronically managed by the service providers and available online. The resources are searchable by county/city and the page is viewed several thousand times per year. CDPHE maintains a similar service and requires Colorado QuitLine counselors to inform callers of local resources if the caller is interested. This is a searchable database and embedded in a Google map app on www.TobaccoFreeCO.org. CDPHE and the QuitLine might partner with low-SES communities to explore ways to increase the effectiveness of this and similar resources.

3) De-mystify quitlines through interdisciplinary provider education

Callers and community partners need a cohesive and seamless description of the QuitLine including the relationship between the QuitLine, community care providers, CDPHE, and HCPF.

3.a. Craft a simple description of the Colorado cessation continuum-of-care that includes bi-directional communication between state level agencies and community healthcare and public health agencies.

3.b. Continue and strengthen CDPHE and NJH efforts to build relationships with referral agencies in low-SES communities. Efforts would include adequately training community providers to make most appropriate referrals to the QuitLine and orient referred callers to QuitLine services, including expectations for a longer first call.

3.c. Leverage naturally occurring provider organizations and conferences/events to provide continuing education and evidence-based updates to interdisciplinary providers serving low-SES tobacco users.

3.d. Provide technical assistance to receptive community agencies regarding effective community agency workflows that include tobacco screening, assessment, treatment, and referral to the QuitLine.

3.e. Consider promoting peer navigators and community health workers as integral and trusted components of patient-centered medical neighborhood. The QuitLine might also consider hiring appropriately trained peers as QuitLine call staff.

Quitlines are operationally complex and have a number of contractual intricacies, but such complexities should not be impede provider referral or smokers' calls. Part of creating a united messaging front is developing multi-media tools for both providers and smokers that accurately

prepare individuals for quitline interactions, particularly the first intake call. If the healthcare provider tells the patient one thing, and the patient experiences another, the reputation of the QuitLine suffers.

More open and frequent communications between healthcare clinics and CDPHE/NJH would be beneficial. Some providers are under the impression that they should refer all smokers to the QuitLine or only narrow populations such as pregnant, low-income smokers. Outside of Colorado several quitline administrators on the other hand understand that not all smokers are a good fit for telephonic counseling and many smokers are not at a stage of change (e.g., pre-contemplation) appropriate for such services. The QuitLine is best positioned to educate providers regarding how to make the highest quality referrals for the service they are operating.

To the extent that physicians or other healthcare providers make referrals to the QuitLine, these referring providers need ongoing education regarding appropriate use of the QuitLine and what callers can expect. While outreach to some providers is taking place, there continues to be significant unawareness and confusion among providers regarding QuitLine services. And as previously noted, Colorado's county public health agencies often have an incorrect or incomplete understanding of QuitLine services. Continuing education should include clear guidelines to providers on screening/assessing for appropriate referrals. This could be integrated with instructions for using both the fax referral and Medicaid pre-authorization forms. One possible avenue of outreach is to target the regional medical associations and networks that serve the largest percentage of Colorado's low-SES patients, and also integrate these materials into naturally occurring physician events such as the Colorado Medical Society annual conference.

Continued development of feedback loops with clinics will increase appropriateness of referrals. Both referring agencies and the QuitLine might also mutually reinforce cessation efforts by contacting patients on their quit date. Some clinics have further created opportunities in the interdisciplinary workflow to call their clients at some pre-specified moment after their quit date to assess whether the patient has quit and, if necessary, schedule another appointment with them to reassess medication levels as numerous psychotropic and other medications levels are significantly affected when smokers quit.

There is growing evidence-base supporting the use of peers in most aspects of behavioral change across chronic care conditions including for tobacco cessation. Low-SES smokers should be, whenever possible, connected to community-based peer groups. Ideally peers (a.k.a. navigators, peer specialists, community health workers) are past smokers and individuals who have also used the QuitLine and/or have experience with how the QuitLine functions. Community-based peers with many of the smokers' same characteristics are best positioned to explain how to maximize telephonic cessation services, and incorporate new coping strategies

into their everyday life. Peer-based strategies potentially mitigate the more frustrating and unpleasant aspects of quitting, including medical trust issues, through provision of healthy social support. The QuitLine might also consider hiring appropriately skilled peers as call staff and/or have peers provide continuing education to call staff regarding the peer experience.

4) Outreach to Medicaid enrollees

An interdepartmental understanding regarding mutual roles and responsibilities for outreach to Medicaid enrollees regarding available tobacco cessation benefits needs to be both developed and implemented.

4.a. HCPF should work with CDPHE to create clear guidance on the new tobacco cessation counseling benefit and related billing codes, the ongoing medication benefit, as well as the training expected of providers. This information needs to be rapidly disseminated to public health agencies and healthcare organizations/ networks.

4.b. HCPF should consider direct mailing or other communications with enrollees instead of depending on state funded networks to solely provide such communications. Funded agencies may have certain inherent biases in promoting tobacco cessation services. Other states have found that direct communications from the Medicaid Office significantly increases QuitLine reach to low-SES tobacco users.

Currently HCPF does not outreach directly to Medicaid enrollees with any marketing or explanatory materials. Instead, HCPF works indirectly through the BHOs, RCCOs and ACOs and depends on these organizations to educate enrollees on their level and type of treatment benefits. HCPF is the agency with the institutional knowledge and the most understanding of who qualifies for which services. Most large healthcare agencies and provider networks have little understanding of state tobacco cessation benefits and QuitLine services specifically. The passage of ACA and the subsequent expansion of Medicaid in Colorado mean that eligibility has dramatically expanded. Many of the newly eligible may never have had previous insurance coverage. ACA itself has new provisions, so in addition to the growing pool of enrollees, HCPF will also be providing potentially unfamiliar cessation benefits. HCPF and CDPHE are the agencies with the knowledge to create clear guidance and explanation of benefits for Medicaid enrollees. HCPF is clearly the entity that must validate the accuracy of insurance plan content in a rapidly shifting healthcare environment.

A massive direct mail campaign separately or in conjunction with a mass-market campaign is time consuming and costly. However, there may be long-term benefit to Colorado in the form of decreased long-term chronic disease and associated Medicaid costs. A cost-benefit analysis would determine if launching statewide informational campaigns have multi-year return-on-investment.

Even those who are not Medicaid-eligible stand to benefit from an explanation of quitline benefits. It appears to fall within CDPHE's scope to insure that messaging to these populations is consistent with the quality of information Medicaid enrollees might potentially receive.

5) Review prior authorization procedures

Currently there are two types of prior authorization needed to receive services from the QuitLine which are noted barriers to care. CDPHE, HCPF, and the QuitLine need to review these requirements to determine if both treatment pre-authorizations are necessary and/or how the preauthorization process might be streamlined.

5.a. Convene a group of content and policy experts over the next year to determine the necessity of pre-authorizations. And if preauthorization(s) remain a requirement, how to reduce burden on both QuitLine callers and referring providers.

To receive up to eight weeks of cessation medications from the QuitLine, callers must obtain a preauthorization of medical eligibility from their healthcare provider if they have certain medical conditions (i.e., pregnant, uncontrolled high blood pressure, heart disease). In addition, if the patient has Medicaid, and the provider is prescribing tobacco cessation medication, the Medicaid prior-authorization form must also be completed. While CDPHE and the QuitLine have attempted to simplify this process by providing both forms on the QuitLine's Fax-to-Quit referral form, healthcare providers continue to be confused by the necessity and use of two treatment pre-authorizations. And if a QuitLine caller is required to return to a provider for pre-authorization there is less chance they will call again due to their own daily demands and access to healthcare providers. To remove this care barrier, there are several states which no longer require pre-authorizations. A Colorado clinic is also looking at how a single Medicaid pre-authorization may be formatted to cover all FDA cessation medications under HCPF guidelines for annual number of approved quit attempts and duration of pharmacotherapy.

6) Identify the most effective technology

CDPHE and the QuitLine should review which technological platforms are most effective for reaching and sustaining low-income smokers in tobacco cessation services.

6.a. Determine how national or state pilots may be scaled up for use in low-SES communities statewide.

6.b. Identify how to balance continued attention to increasing provider referral to the QuitLine with proactive outreach to low-SES communities through telephonic or other technology solutions.

6.c. Consider QuitLine pilot protocol changes for the low-SES population such as increasing the number of call attempts before considering callers lost to follow-up or enhancement to team coaching models.

There is a “technology gap” whereby lower-income individuals have more restricted access to new technologies. Even so, to the extent that technological innovations can be used to reach more people, those avenues should be explored and adopted. It was unclear during this review if the QuitLine has systematically assessed alternative technologies meeting the needs of low-SES smokers (versus all Colorado smokers), and if so, evaluated technologies for how they coherently interface with telephonic QuitLine services. As but one of many examples, extended e-referral systems could help clinics avoid sending the QuitLine illegible phone numbers, and this innovation is being tested in partnership with Denver Health.

Several key informants recommended moving away from an enhanced provider referral system/technology as the primary method to increase reach. These experts shared that providers often do not have the time to distinguish good referral candidates from marginal or inappropriate ones. The result was that quitlines often outreached to smokers that might avoid their calls or quitline staff would complete the intake process to find that callers were not ready and/or motivated to accept cessation treatment.

CDPHE and NJH could consider balancing continued attention to promoting provider referral with increasing self-referral and proactive IVR calling to targeted low-SES groups or other techniques for directly increasing quitline utilization among at-risk smokers. As one example, the California Smokers’ Helpline has found that these strategies significantly increase reach to targeted demographics. As other options, algorithmically controlled text messages may often be the added incentive a smoker needs to get through a critical moment during the early phases of their quit attempt. Chatting services and online forms could also decrease the length of intake calls and increase engagement.

Conclusions

Colorado's QuitLine is a critical component of a continuum of resources to help vulnerable smokers quit. The QuitLine has the ability to offer services statewide at an affordable cost and with proven cessation outcomes. However, telephonic services have limits and there are barriers to accessing these services. As overall tobacco use rates decline, CDPHE and the QuitLine must adjust strategies for reach to the demographics of individuals that continue to smoke at disproportionate rates, generally represented by low-income smokers. Colorado should consider several promising approaches toward most effectively serving the needs of at-risk populations, including active partnerships between state departments, strengthening core messaging, community education regarding quitline services, cultivating community healthcare and neighborhood-based partnerships, developing peer networks, innovative technology, and reaching out directly to potentially eligible patients.

References

- About NAQC. (n.d.). In North American Quitline Consortium. Retrieved from <http://www.naquitline.org/?page=AboutNAQC>
- Adler, N. E., Boyce T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist*, 49(1), 15-24.
- Amos, A. K., Bauld, L. Clifford, D., Gidler, J., Hill, S., Hiscock, R., . . . Robinson, J. (2011) *Tobacco Control, Inequalities in Health and Action at a Local Level*. Public Health Research Consortium. York.
- Anderson, C. M. & Zhu, S. (2007). Tobacco quitlines: Looking back and looking ahead. *Tobacco Control* 16(Suppl1), i81-i86.
- Bala, M. M., Strzeszynski, L., Topor-Madry, R., & Cahill, K. (2013). Mass media interventions for smoking cessation in adults (Review). *The Cochrane Database of Systemic Reviews*, 1.
- Blumenthal, D. S. (2007). Barriers to the provision of smoking cessation services reported by clinicians in underserved communities. *Journal of the American Board Family Medicine*, 20,272-279.
- Brown, T., Platt, S., & Amos, A. (2014). Equity Impact of population-level interventions and policies to reduce smoking in adults: A systematic review. *Drug and Alcohol Dependence*, 138, 7-16.
- Brown-Johnson, C. G., England, L. J., Glantz, S. A., & Ming, P. M. (2014). Tobacco industry marketing to low socioeconomic status women in the USA. *Tobacco Control*. Advance online publication. Retrieved from: <http://tobaccocontrol.bmj.com/content/early/2014/01/21/tobaccocontrol-2013-051224.full>
- Burns, E. K., Deaton, E. A., & Levinson, A. H. (2011). Rates and reasons: Disparities in low intention to use a state smoking cessation quitline. *American Journal of Health Promotion*, 25(5), S59-S65.
- Cahill, K. Stevens, S., Perera, R., & Lancaster, T. (2013). Pharmacological interventions for smoking cessation: An overview and network meta-analysis (Review). *The Cochrane Library*, 5.
- Carlini, B. H., McDaniel, A. M., Weaver, M. T., Kauffman, R. M., Cerutti, B. Stratton, R. M., & Zbikowski, S. M. (2012). Reaching out, inviting back: Using interactive voice response (IVR) technology to recycle relapsed smokers back to Quitline treatment-a randomized controlled trial. *BMC Public Health*, 12, 507. Retrieved from: <http://www.biomedcentral.com/content/pdf/1471-2458-12-507.pdf>
- Carson, K. V., Brinn, M. P., Labiszewski, N. A., Esterman, A. J., Chang, A. B., & Smith, B. J. (2011). Community interventions for preventing smoking in young people (Review). *The Cochrane Library*, 7.

- Carson, K. V., Verbiest, M. E. A., Crone, M. R., Brinn, M. P., Esterman, A. J., Assendelft, W. J. J., & Smith, B. J. (2012). Training health professionals in smoking cessation (Review). *The Cochrane Library*, 5.
- Centers for Disease Control and Prevention (CDC). (2011) *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 1995-2011.
- Centers for Disease Control and Prevention (CDC). (2014). *Best Practices for Comprehensive Tobacco Control Programs—2014*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- Cohen D. A., Spear S., Scribner R., Kissinger P., Mason K., & Wildgen J. (2000). “Broken windows” and the risk of gonorrhoea. *American Journal of Public Health*, 90, 230–236.
- Cohen D. A., Mason, K., Bedimo, A., Scribner, R., Basolo, V., & Farley, T. A. (2003). Neighborhood Physical Conditions and Health. *American Journal of Public Health*, 93(3), 467–471.
- Colorado Community Coalition for Health Equity. (2010). *Addressing Tobacco in Colorado’s Socio-economically disadvantaged communities: A community blueprint for action*. Retrieved from: <http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheadername1=Content-Disposition&blobheadername2=Content-Type&blobheadervalue1=inline%3B+filename%3D%22CCCHET+Tobacco+and+Poverty+Report.pdf%22&blobheadervalue2=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251746963614&ssbinary=true>
- Colorado Community Coalition for Health Equity. (2012). *Colorado Community Coalition for Health Equity: Developing a Statewide Plan to Address Tobacco in Socio-Economically Disadvantaged communities*. Presented to Promising Practices to Eliminate Tobacco Related Disparities: The Power of Communities Conference. April 18, 2012.
- Colorado Department of Public Health and Environment, Office of Health Equity. (2013). *Health disparities: Exploring health equity in Colorado’s 10 winnable battles*. Denver, CO.
- Community Epidemiology & Program Evaluation Group. (2014). The Attitudes and Behaviors Survey (TABS) on Health, 2012 (unpublished results). University of Colorado Cancer Center.
- Community Epidemiology & Program Evaluation Group. (2014). Adult Tobacco Use and Exposure—Colorado 2012. Prepared for the Epidemiology, Planning and Evaluation Branch, Colorado Department of Public Health and Environment. University of Colorado Cancer Center.
- Cummins, S. E., Bailey, L., Campbell, S., Koon-Kirby, C., & Shu-Hong, Z. (2007). Tobacco cessation quitlines in North America: A descriptive study. *Tobacco Control*, 16(Suppl I), i9–i15.

- Daglish, E., McLaughlin, D., Dobson, A., & Garner, C. (2013). Cigarette availability and price in low and high socioeconomic areas. *Australian and New Zealand Journal of Public Health*, 37(4), 371-376.
- Durkin, S. J., Biener, L., & Wakefield, M. A. (2009). Effects of different types of antismoking ads on reducing disparities in smoking cessation among socioeconomic subgroups. *American Journal of Public Health*, 99, 2217-2223.
- Fildes, E. E., Wilson, M. A. T., Crawford, B. J., Kapella-Mshigeni, S., Wilson, L. A., & Henkelman, W. (2012). Tobacco quitlines in the United States. *Nursing Clinics of North America*, 47(1), 97-107.
- Fiore, M., Jaen, C., Baker, T., et al. (2008). Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline. Rockville, Md: U.S. Department of Health and Human Services.
- Frazier, L. M., Molgaard, C. A., Fredrickson, D. D., Early, J. L., Schukman, J. S., & Dismuke, S. E. (2001). Barriers to smoking cessation initiatives for Medicaid clients in managed care. *Substance Use and Misuse*, 36(13), 1875-1899.
- Free and Discounted Cessation Medication. (2014). In North American Quitline Consortium. Retrieved from <http://map.naquitline.org/reports/medication/>
- Gilpin, E. A., Emery, S. L., & Berry, C. C. (2001). *Technical Report on Analytic Methods and Approaches Used in the 1996 California Tobacco Survey Analysis, Vol 3: Methods Used for Final Report. The California Tobacco Control Program: A Decade of Progress, 1989-1999*. La Jolla, CA: University of California, San Diego. Retrieved from: http://libraries.ucsd.edu/ssds/pub/CTS/cpc00006/FINAL_TECH_REPORT_VOL3.pdf
- Greaves, L., Johnson, J., Bottorf, J., Kirkland S., Jategaonkar, N., McGowan, M. ... Battersby, L. (2006). What are the effects of tobacco policy on vulnerable populations? A better practices review. *Canadian Journal of Public Health*, 97(4), 310-315.
- Haan, M. N., Kaplan, G. A., & Syme, S. L. (1989). Socioeconomic status and health: Old observations and new thoughts. In: Bunker J.P., Gomby D.S., Kehrer R.H., editors. *Pathways to Health: The Role of Social Factors*. Menlo Park, Calif: Henry J. Kaiser Family Foundation, 76-135.
- Hanson, M. D. & Chen, E. (2007). Socioeconomic status and health behaviors in adolescence: A Review of the literature. *Journal of Behavioral Medicine*, 30, 263-285.
- Harris, K. J., Ahluwalia, J. S., Catley, D., Kolawole S. O., Mayo, M., & Resniow, K. (2003). Successful recruitment of minorities into clinical trials: The Kick It at Swope project. *Nicotine & Tobacco Research*, 5(4), 575-84.
- Hiscock, R., Bauld, L., Amos, A., Fidler, J. A., & Munaf, M. (2012). Socioeconomic status and smoking: A review. *Annals of the New York Academy of Sciences*, 1248(1), 107-123.
- Kauffman, A., Auguston, E., Davis, K., & Finney Rutten, L. J. (2010). Awareness and use of tobacco quitlines: Evidence from the Health Information National Trends Survey. *Journal of Health Communication*, 15, 264-278.

- Kennedy, M. G., Genderson, M. G., Sepulveda, M. A., Garland, S. L., Wilson, D. B. ... Dubuque, S. (2013). Increasing tobacco quitline calls from pregnant African-American women: The “One tiny reason to quit” social marketing campaign. *Journal of Women’s Health, 22*(5), 432-438.
- Kim V. & Criner, G. J. (2013). Chronic bronchitis and chronic obstructive pulmonary disease. *American Journal of Respiratory and Critical Care Medicine, 187*(3), 228-37.
- Lai, D. T. C., Cahill, K., Qin, Y., & Tang, J.L. (2010). Motivational interviewing for smoking cessation (Review). *The Cochrane Library, 1*.
- Liu, F. (2009). Effect of Medicaid Coverage of Tobacco-Dependence Treatments on Smoking Cessation. *International Journal Environmental Research and Public Health, 6*(12), 3143-3155.
- Mahoney, M. C., Erwin, D. O., Widman, C., Twarozek, A. M., Saad-Harfouche, F. G., Underwood, W., & Fox, C. H. (2013). Formative evaluation of a practice-based smoking cessation program for diverse populations. *Health Education & Behavior, 41*(2), 186-196.
- Marcano Belisario, J. S., Bruggeling, M. N., Gunn, L. H., & Car, J. (2012). Interventions for recruiting smokers into cessation programmes. *The Cochrane Library, 12*.
- McAfee, T., Davis, K.C., Alexander, Jr., R.L., Pechacek, T.F., & Bunnell, R. (2013). Effect of the first federally funded US antismoking national media campaign. *Lancet, 383*: 2003-2011.
- Miller, C. L., Wakefield, M., & Roberts, L. (2003). Uptake and effectiveness of the Australian telephone Quitline service in the context of a mass media campaign. *Tobacco Control, 12*, ii53-ii58.
- Miller, C. L. & Sedivy, V. (2009). Using quitline plus low-cost nicotine replacement therapy to help disadvantaged smokers to quit. *Tobacco Control, 18*(2), 144-149.
- Morris, C.D. (2010). Do quitlines have a role in serving the tobacco cessation needs of persons with mental illnesses and substance abuse disorders?: A background report—2010. Quitline Behavioral Health Advisory Forum.
- Morris, C. D., Burns. E. K., Waxmonsky, J. A., & Levinson, A.H. (2014). Smoking cessation behaviors among persons with psychiatric diagnoses: Results from a population-level survey. *Drug and Alcohol Dependence, 136*, 63-68.
- North American Quitline Consortium. (2005). *Quitline Operations: A Practical Guide to Promising Practices*.
- North American Quitline Consortium. (2014). Quitlines in the U.S.: An Exploration of the Past and Considerations for the Future. (D. Tinkelman, MD). Phoenix, AZ. Retrieved from: http://c.ymcdn.com/sites/naquitline.site-ym.com/resource/resmgr/Issue_Papers/42214FutureofQuitlinesIssueP.pdf
- Over, E. A, Feenstra, T. L., Hoogenveen, R. T., Droomers, M., Uiters, E., & van Gelder, B. M. (2014). Tobacco control policies specified according to socioeconomic status: Health

- disparities and cost-effectiveness. *Nicotine & Tobacco Research*. Advance online publication.
- Peretti-Watel, P., Haridon, O. L., & Seror, V. (2013). Time preferences, socioeconomic status and smokers' behavior, attitudes, and risk awareness. *European Journal of Public Health*, 23(5), 783-788.
- Petty, T. L. (2006). The history of COPD. *International Journal of Chronic Obstructive Pulmonary Disease*, 1(1), 3-14.
- Prout, M. N., Martinez, O., Ballas, J. Geller, A. C., Lash, T. L., Brooks, D., & Heeren, T. (2002). Who uses the smoker's quitline in Massachusetts? *Tobacco Control*, 11(Suppl II), ii74-ii75.
- Reda, A. A., Kotz, D., Evers, S. M. A. A., & van Schayck, C. P. (2012). Healthcare financing systems for increasing the use of tobacco dependence treatment (Review). *The Cochrane Library*, 6.
- Schauer, G. L., Malarcher, A. M., Zhang, L., Engstrom, M. C., & Zhu, S. H. (2014). Prevalence and correlates of quitline awareness and utilization in the United States: An update from the 2009-2010 national adult tobacco survey. *Nicotine and Tobacco Research*, 16(5), 544-53.
- Sheffer, C. E., Brackman, S. L., Cottoms, N., & Olsen, M. (2011). Understanding the barriers to use of free, proactive telephone counseling for tobacco dependence. *Qualitative Health Research*. XX(X): 1-11. Online publication.
- Siapush, M., Wakefield, M., Spittal, M., & Durkin, S. (2007). Antismoking television advertising and socioeconomic variations in calls to Quitline. *Journal of Epidemiology & Community Health*, 61(4), 298-301.
- Solomon, L. J., Hughes, J. R., Livinston, A., Naud, S., Callas, P. W., Peters, E. N....Etter, J. (2009). Cognitive barriers to calling a smoking quitline. *Nicotine & Tobacco Research*, 11(11), 1339-1346.
- Stead, L. F., & Lancaster, T. (2005). Group behavior therapy programmes for smoking cessation. *The Cochrane Library*, 2.
- Stead, L. F., & Lancaster, T. (2012). Behavioural interventions as adjuncts to pharmacotherapy for smoking cessation. *The Cochrane Library*, 12.
- Stead, L. F., Hartmann-Boyce, J. Perera, R., & Lancaster, T. (2013). Telephone counselling for smoking cessation. (Review). *The Cochrane Library*, 8.
- Stewart, D. W., Adams, C. E., Cano, M. A., Correa-Fernandez, V., Li, Y., Waters. A. ... Vidrine, J. I. (2013). Associations between health literacy and established predictors of smoking cessation. *American Journal of Public Health*, 103(7), e43-e49.
- Tobacco Use - Objectives. (n.d.). In Healthy People.gov. Retrieved from <http://www.healthypeople.gov/2020/topics/objectives2020/objectiveslist.aspx?topicid=41>
- Tzelepis, F., Paul, C. L., Walsh, R. A., Knight, J., & Wiggers, J. (2013). Who enrolled in a randomized controlled trial of quitline support? Comparison of participants versus

- nonparticipants. *Nicotine & Tobacco Research*. Online advance publication: <http://ntr.oxfordjournals.org/content/early/2013/08/02/ntr.ntt114.full.pdf+html>
- U.S. Census Bureau. (2007, January 12). *State & county Quickfacts: Colorado*. Retrieved from <http://quickfacts.census.gov/qfd/states/08000.html>
- U.S. Department of Commerce. Economics and Statistics Administration. U.S. Census Bureau. (2011). Income, poverty, and health insurance coverage in the United States: Report P60. Retrieved from <https://www.census.gov/prod/2011pubs/p60-239.pdf>.
- U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. (2014). *The Health Consequences of Smoking—50 Years of Progress. A Report of the Surgeon General*. Retrieved from <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf>
- U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. (2012). *National Survey on Drug Use and Health: Model-based Prevalence Estimates, 2011-2012*.
- Who Uses Quitlines? (2010) In North American Quitline Consortium. Retrieved from http://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/Sustainability/100812_w_ho-calls-quitlines.pdf
- Willems, R. A., Willemsen, M. C., Nagelhout, G. E., Smit, E. S., Janssen, E., van den Putte, B., et al., (2012). Evaluatie van de 'Ech stoppen met roken kan met de juiste hulp' campagne. Universiteit Maastricht, Maastricht.
- Wilson, N. Weerasekara, D., Hoek, J., Li, J., & Edwards, R. (2012). Increased smoker recognition of a national quitline number following introduction of improved pack warnings: ITC Project New Zealand. *Nicotine and Tobacco Research*, 12(Suppl 1), 71-77.
- Wood, S. S., & Haskins, A. E. (2007). Increasing reach of quitline services in a U.S. state with comprehensive tobacco treatment. *Tobacco Control*, 16(Suppl 1), i33-i36.
- Zhu, S. H., Anderson, C. M., Tedeschi, G. J., Rosbrook, B., Johnson, C. E., Byrd, M., & Gutiérrez-Terrell, M. (2002). Evidence of real-world effectiveness of a telephone quitline for smokers. *New England Journal of Medicine*, 347, 1087-1093.
- Zhu, S. H., Anderson, C. M., Johnson, C. E., Tedeschi, G., & Roeseler, A. (2000). A centralised telephone service for tobacco cessation: The California experience. *Tobacco Control*, 9(Suppl2), ii48-i55.
- Zhu, S. H., Rosbrook, B., Anderson, C. M., Gilpin, E., Sadler, G., & Pierce, J. P. (1995). The demographics of help-seeking for smoking cessation in California and the role of the California Smokers' Helpline. *Tobacco Control*, 4, S9-S15.

Appendices

Appendix A: Insurance Coverage for Quitline Callers

Insurance	Frequency	Percent
NO INSURANCE	15,456	40.9
Aegis Security Ins Co	1	.0
Aetna	350	.9
American Medical Security	1	.0
Anthem BlueCross/Shield/HMO CO	184	.5
Beech Street	3	.0
Child Health Plan Plus	34	.1
CICP	1,310	3.5
Cigna	163	.4
Colorado Access	82	.2
Colorado Health OP	3	.0
Community Health Plan of the Rockies	8	.0
Denver Health Medical Plan	111	.3
Employer's Health	3	.0
Great West	2	.0
Health Network/CO Springs HealthCare	4	.0
Humana	37	.1
John Alden Life Insurance	5	.0
Kaiser	3,357	8.9
Medicaid	9,549	25.2
Medicaid Colorado Access	153	.4
Medicaid Comm. Health Plan of Rockies	10	.0
Medicaid Denver Health	133	.4
Medicaid Kaiser	100	.3
Medicaid of Rocky Mountain HMO	127	.3
Medical Network of Colorado Springs	3	.0
Medicare	3,581	9.5
Medicare Blue Advantage of Seniors	8	.0
Medicare Kaiser Senior Advantage	39	.1
Medicare Secure Horizons	54	.1
Mutual of Omaha	1	.0
Other Insurance	1,260	3.3
PacifiCare	1	.0
Pro Acta Health Partners	1	.0
Prudential HealthCare	3	.0
Rocky Mtn. Health Plan	361	1.0
Secure Horizons	59	.2
See Change Health	6	.0
Sloans Lake Health Plan	1	.0
TriCare/Champus	165	.4
United Healthcare	1,159	3.1
Total	37,888	100.0

Appendix B: Key Informants

12/9/13	Ali Zirakzadeh	Internist	Denver Health	CO
1/6/14	Arnold Levinson	Professor	Univ. of Colorado School of Public Health - CEPEG	CO
	Michele Kimmenau	General Manager	Univ. of Colorado School of Public Health - CEPEG	CO
1/7/14	Richard Delaney	Program Specialist	Colorado Dept. of Health Care Policy and Financing	CO
	Kirsten Michel		Colorado Dept. of Health Care Policy and Financing	CO
1/7/14	Carsten Baumann	Director, External Evaluations	Colorado Dept. of Public Health and Environment	CO
1/8/14	David Tinkleman	Medical Director	National Jewish Health, Health Initiatives Programs	CO
	Amy Lukowski	Clinical Director	National Jewish Health, Health Initiatives Programs	CO
1/8/14	Donna Viverette		Jefferson County Department of Health	CO
	Jennifer Woodward		Jefferson County Dept. of Health	CO
1/9/14	Rob Adsit	Director, Outreach Programs	University of Wisconsin Center for Tobacco Research & Intervention	WI
	Bruce Christiansen	Senior Scientist	University of Wisconsin-Center for Tobacco Research & Intervention	WI
1/10/14	Chris Anderson	Program Director	California Smokers' Helpline	CA
1/14/14	Linda Bailey	President and CEO	North American Quitline Consortium	AZ
	Tamatha Thomas-Haase	Manager, Training & Program Services	North American Quitline Consortium	AZ
1/15/14	Robin Daigh	President	National Jewish Health, Health Initiatives Programs	CO
1/16/14	Emma Goforth	Tobacco Cessation Coordinator	Colorado Department of Public Health & Environment	CO
1/21/14	Beth Sanders	Health Equity Systems Coordinator	Oregon Public Health Division	OR
5/1/14	Lisa Calderon	Executive Director	Community Re-entry Project	CO

Appendix C: Low SES/ Medicaid Key Informant Script

Background Script

- The vast majority of current smokers know the risks associated with tobacco use, and wish to quit. Over 2/3 of them will make at least one quit attempt each year and most of them will make 2 or 3. The average smoker who eventually succeeds will have attempted to quit 7-8 times.
- Although most smokers wish to quit, not all are ready to make the commitment and some, although ready, lack the confidence needed to actually begin the process.
- The Low SES and Medicaid populations also face historical barriers, including access to an effective range of clinical and population-based services (e.g., 5As or 2As & R).
- Research has shown that primary medical care providers play an instrumental role in providing patients the knowledge, tools, and support needed to make a successful transition to tobacco abstinence.
- However, incorporating evidence-based best practices into a clinical setting is not necessarily an easy transition on the administrators, techs, nurses, and physicians who would be expected to adjust their current clinical habits, interpersonal communications styles, and documentation/billing procedures. Adding questions to admissions forms, engaging the patient in an empathetic manner, and following up on the patient's success or failure take time.
- Furthermore, because additional successes might be infrequent and inconsistent, patterns of success are harder to discern.
- Changes in procedures also go through a trial-and-error phase where mistakes, newly introduced because of unfamiliarity with new routines and potentially new partnerships outside the clinic, further slowdown clinic operations and impede success and therefore damage sustainability efforts.
- At the same time there are innovative strategies for creating an effective workflow in these settings.

Purpose

The purpose of this key informant interview is discover, first hand, what challenges and successes you are encountering at each stage of promoting tobacco cessation, particularly utilizing QuitLine services, from the initial assessment, referrals, feedback/reporting, promotion, billing, and what administrative, marketing, and educational processes have been implemented to support this work.

Confidentiality disclosure

We will be generating a report based on themes from key informant interviews. Themes will be presented in aggregate, but we will also extract key quotes. But these will presented without any

identifying information regarding who said what. The report will be used by CDPHE for strategic planning purposes.

Demographics

- OK, before we begin, can you tell me your name as you would prefer to see it in print? (Obviously restate, the point is to gather easy information first, some demographic information)
- What is your title?
- How long have you worked in that profession?
- How long have you worked at your current organization?
- How long have you worked in your current position?
- Have you had training in tobacco cessation strategies?
- What relationship do you have with the National Jewish QuitLine (e.g., referring clinician, referring non-clinician, funder, promoter)?

Qualitative Assessment

Primary question: Are you offering tobacco cessation services to the low-SES/Medicaid population? If so, what is working and what hurdles are you facing?

Possible follow-up questions:

- Have interviewee identify key steps in process or workflow
- Have interviewee prioritize the “most critical stage in the process/workflow” to achieve the maximum benefit to the patient.
- Identify the critical features of this stage being successful.
- Identify foreseeable or experienced barriers at this stage.
- Elicit ideas for overcoming barriers and potential solutions
- If this is not the first interview, mention that other interviewees had identified certain problems at another stage and attempt to elicit commentary on that stage/those problems.

Questions Specific to National Jewish/QuitLine:

- Do they know about QuitLine?
- For clinical sites- Have they referred patients to QuitLine/Are QuitLine referrals a part of their clinical process?
- What are the strengths of the QuitLine process?
- Have they experienced barriers? (Are these problems Quitline-based or internal to the clinic?)
- What fixes/workarounds have they implemented?

- Who have they contacted to address QuitLine-based difficulties?
- What has the response been?
- Have their patients reflected back to them any comments or reported their experience with QuitLine? What have they said?
- What referral errors cause requests for NRT to be rejected?

Conclusion

- Are there any related topics, problems, concerns that the interviewee would like to add?
- Ask them if they wouldn't mind a follow-up call since new information, problems, etc. may arise as other interviews are conducted.
- Who else would you suggest we talk to
- Thank them for their participation and time.

Appendix D: Low-SES Focus Group Invitation

Ask for invitee by first and last name.

Greeting:

Hi, my name is [CALLER NAME] from the University of Colorado School of Medicine. Back in [MONTH ENROLLED] you called the QuitLine, and during your intake you agreed to be contacted for potential follow-up regarding your experience. Do you have a few minutes to talk?

Introduction:

As national experts on tobacco cessation and other health and wellness topics, the Behavioral Health and Wellness Program has been working with the state of Colorado and Quitlines across the United States to identify areas for improvement. Specifically, due to your background, we believe you have valuable insights that can help Colorado's QuitLine help more people successfully overcome their addiction to nicotine.

Invitation:

We would like to invite you to share your experiences with the QuitLine program and your opinion on what it does well and what could be improved. We are conducting a focus group at [TIME] on [DATE]. The discussion will be held over the phone, so you can participate from wherever you are at that time. The conversation will probably take about one hour. Would that be a convenient time for you to join us?

Disclosures:

Just to let you know, participants in this group discussion will be mailed a gift card in the amount of \$10.00 to Wal-Mart to reimburse them for their time and expertise.

Also, you have been selected for this particular session because of [DEMOGRAPHIC CHARACTERISTICS], however, you are not required to limit or change your responses based on that quality. Will you be comfortable discussing your opinions with others with whom you share that characteristic?

Confidentiality:

Since the conversation will be held over the phone, it will be necessary to identify yourself before or after you answer a question. Will you be comfortable identifying yourself by first name?

Just to let you know, your participation will be recorded and potentially included in a report that will be submitted to the Colorado Department of Health and Human Services and to the QuitLine. However, your name will not be included in these documents. Only your fellow group discussion participants, my fellow researchers who participate in the call and I will have access to that information. Is that going to be OK with you?

Contact Information Verification:

In order to send you a reminder and contact you in the case of any scheduling updates can I verify the contact information we have on file?

Is the number I called you at today the best one to use in the future? Or, if you'd prefer, we can contact you through email. [Get email address.]

The address we have on file is on [STREET], is this still your current address?

[Verify email if we have one, otherwise] And is there an email address we can contact you at?

Great, thank you so much. After you participate in the group discussion, we will send the gift card to the address above. And if we need to contact you with scheduling or other updates, which is the best way to contact you, through email, over the phone, or by regular mail?

And in case you need to cancel for any reason, let me give you my contact information. [PROVIDE PHONE NUMBER and EMAIL ADDRESS].

OK. I, or someone else from my team, will [contact you via the agreed-upon method] sometime the week of [THE WEEK BEFORE FOCUS GROUP]. And thank you so much for agreeing to help us with this project.

Close:

Before I let you go, do you have any concerns or questions for me?

OK, well if you think of anything, you have my contact information, so feel free to call me anytime. Thanks again, and have a great rest of the day.

Appendix E: Low-SES Focus Group Script

CONFIDENTIALITY STATEMENT

Hi, everybody. My name is Rebecca Richey and I am the Assistant Clinical Director at the Behavioral Health and Wellness Program. Also with me today is Jim Pavlik, who you've all met already. And the first thing I would like to do is thank you all for agreeing to join us for this conversation today. And I would like to explain very briefly what this is all about. As you know, the QuitLine is a really important part of Colorado's programs to help people quit smoking. A lot of people have had a lot of success with the QuitLine, but Colorado thinks that it could be doing more. Basically, the Colorado Department of Public Health & Environment has asked us to help them identify areas for improvement. But we thought it would be better, instead of giving them our ideas, we would go directly to the people who have called the QuitLine themselves and hear what you have to say.

We will be recording this conversation and turning the major ideas into a report which we will submit to the Department of Public Health and also to the QuitLine. All of your names and identifying information will be kept private and your role in the report will be anonymous.

Before we begin, we just need to go around and make sure that everyone understands a few points. First, that the meeting will be recorded and that the final, anonymous results will be submitted to the Department of Public Health for the purposes of improving QuitLine services. Secondly we want to make clear that we are not the QuitLine. We are an independent agency. So you're free to be as openly positive or critical as you want to be.

Roll Call

Great. Before we begin we would like each of you be in as quiet a place as is possible. If you can, turning off radios, TVs etc. Unfortunately the way this phone conference is set up, if more than one person is talking at one, the entire audio gets garbled. I know that some of you will have children or other family members present and that's OK. If you can, mute your phone. We'll be calling on each of you to respond, so you'll know when to unmute it to answer.

So let's begin. We have a few questions to ask each of you, but if you have additional comments you would like to add, feel free to do so. The only thing we ask is that, since this conversation is over the phone, please tell us who you are before you make your comment.

Q1:

The first thing we would like to know is, how you heard about the QuitLine and what made you call them for the first time. And X we'll start with you.

Q2:

Can you tell us, briefly, what kind of information or advice the QuitLine has given you and whether you have found that advice helpful as you tried to quit? And Y, lets start with you.

Q3:

Did the QuitLine provide you with any NRT? Z, we'll start with you? [Did Z already have NRT in mind when he called? Did he have questions or concerns and did the QuitLine have the answers he needed? Did his NRT arrive on time? -- Have you gotten any advice from the QuitLine that was not helpful?

Q4:

What has been your overall experience with the QuitLine?

Q5:

If you could tell the top management at QuitLine one thing that would make their service better for you, what would it be?

Q6:

Do you think the QuitLine would work for any of your friends and family members who smoke? Why or why not?

Q7:

Let's just go around real fast and see if there's anything you would like to add that we haven't asked you about yet. [ROLL CALL]