North Carolina
Department of Health
and Human Services

Tobacco Prevention and
Control Branch

QuitlineNC

FISCAL YEAR 2024 ANNUAL REPORT

July 2023 - June 2024

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Tobacco Prevention and Control Branch

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Report Date: February 12, 2025

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I. Executive Summary

QuitlineNC provides a cost-effective and necessary service to participants in every county in North Carolina and continues to successfully reach people who use tobacco from several populations that have higher rates of tobacco use and related health disease, including participants with Medicaid, Medicare, no health insurance, and/or mental health conditions. Since QuitlineNC launched in 2005, between 23,150 and 54,847 NC tobacco users who utilized QuitlineNC coaching have quit using tobacco.

Participation in the FY 2024 was similar to the previous fiscal year; more than 10,000 North Carolinians reached out to QuitlineNC during the evaluation period and nearly as many utilized services. Ongoing federal and state promotion, as well as referrals from healthcare providers and insurers is continue to sustain participation numbers.

Sustained and increased Quitline promotion may help grow participant volume in the future, in addition to maintaining outreach to health care providers. Ongoing efforts to nurture existing partnerships and develop new ones may also help grow and sustain QuitlineNC participant volume. State policies that require Medicaid Managed Care Organizations to participate in QuitlineNC are an important partnership in sustaining participation in QuitlineNC and financial coverage for services.

QuitlineNC participants in FY 2024 achieved a 30-day conventional tobacco quit rate between 15.7% (intent-to-treat) and 38.3% (responders). Participants achieved a 30-day conventional tobacco plus e-cigarette quit rate between 13.3% (intent-to-treat) and 32.4% (responders).

FY 2024 was the first full evaluation period since QuitlineNC transitioned from providing primarily call based cessation to a new coaching platform which provides cessation coaching across multiple modalities (phone, text, web, one on one and in groups) in the standard program. Despite the platform change, participants continue to primarily utilize phone-based coaching, however utilization of free nicotine replacement therapy continues to be high; 86.2% of eligible participants received NRT.

Although Quitline services are evidence based and cost effective, funding for the service does not meet spending goals set by the North American Quitline Association.

QuitlineNC provides valuable and evidence-based support to people who use tobacco and want to quit. QuitlineNC can provide an important mechanism for meeting the HealthyNC goal of decreasing tobacco use among adults to 15% by 2030.[1] However, increased funding for the Quitline and the ability to allocate funding across services, promotion, and emerging needs as the tobacco landscape changes are necessary to ensure that the Quitline is reaching and providing service to the people of North Carolina.

II. QuitlineNC Background

Quitlines are an effective and evidence-based approach to tobacco cessation, significantly increasing quit rates compared to quitting with no support.[2] Combining cessation coaching with free nicotine replacement therapy (NRT) increases Quitline participant volume, participant satisfaction, and quit rates,[3-6] while marketing campaigns promoting Quitline services effectively increase utilization.[7-9] From its launch in 2005 through June 2011, QuitlineNC was jointly funded by the NC Health and Wellness Trust Fund and the Tobacco Prevention and Control Branch (TPCB) of the NC Department of Health and Human Services. Beginning in July 2011, QuitlineNC has been funded through the TPCB.

Currently operated by RVO Health (formerly Optum), QuitlineNC provides free, proactive telephone, text, and digital tobacco cessation coaching services 7 days per week, 24 hours a day in multiple languages to all North Carolinians. QuitlineNC users can register over the phone by calling or texting or via the QuitlineNC website: www.QuitlineNC.com. QuitlineNC accepts fax referrals and secure e-referrals; referrals generate proactive calls from Quitline coaches. The evaluation period for this report is Fiscal Year 2024 (FY 2024), which includes enrollments and services delivered between July 1, 2023, and June 30, 2024, or Fiscal Year 19 of QuitlineNC.

FY 2024 is the first full evaluation period since QuitlineNC transitioned from providing primarily call-based cessation coaching with additional text and web services available, to a new coaching platform which provides cessation coaching across multiple modalities (phone, text, web, one on one and in groups) in the standard program. The new "Rally" system provides an integrated coaching framework across multiple modalities. The new platform also follows recommendations of the 2020 Surgeon General's report, which describes phone, web, and text-based cessation coaching and interventions as effective at increasing smoking cessation.[10]

In the Rally system, participants who call the quitline are registered in a standard 5-session coaching program. People who register for QuitlineNC who are pregnant, are younger than 18, have a mental health condition, or are American Indian are eligible for more intensive, tailored coaching. All participants have access to written educational materials, texting intervention, web-based support, and referrals to community-based support.

The NC TPCB manages QuitlineNC. In FY 2024, QuitlineNC received funding from the NC General Assembly, the Centers for Disease Control and Prevention (CDC) through the Quitline component of the National and State Tobacco Control Program grant, and through CDC Covid Health Equity funding. QuitlineNC funding was also provided via partnerships with Blue Cross Blue Shield of North Carolina (BCBSNC), Appalachian District Health Department counties (Alleghany, Ashe, Avery, Watauga, and Wilkes County), Caldwell County, Richmond County Health Department and associate counties (Montgomery, Hoke, and Cumberland County), Wake County, and Rock House Farm Family of Brands. Richmond County Health Department exhausted its funding within the first six months of FY24.

As part of their work to improve access to tobacco cessation counseling and NRT, NC DHHS, including TPCB, have introduced requirements that Medicaid managed care organizations are required to use and promote the use of QuitlineNC and provide access to NRT.[11] This has created partnerships between QuitlineNC and five Medicaid Standard Plan providers, AmeriHealth Caritas, Carolina Complete Health, Healthy Blue, United Healthcare, and WellCare, with more to be added in FY 2025. These partnerships provided funding for the plan members to receive QuitlineNC services, free NRT starter kits, and standing orders to receive NRT at their local pharmacy.

The UNC Tobacco Prevention and Evaluation Program (TPEP) has provided independent evaluation of QuitlineNC since 2005. Findings are based on analysis of QuitlineNC intake and utilization data collected by RVO Health and 7-month follow-up survey data collected by UNC TPEP.

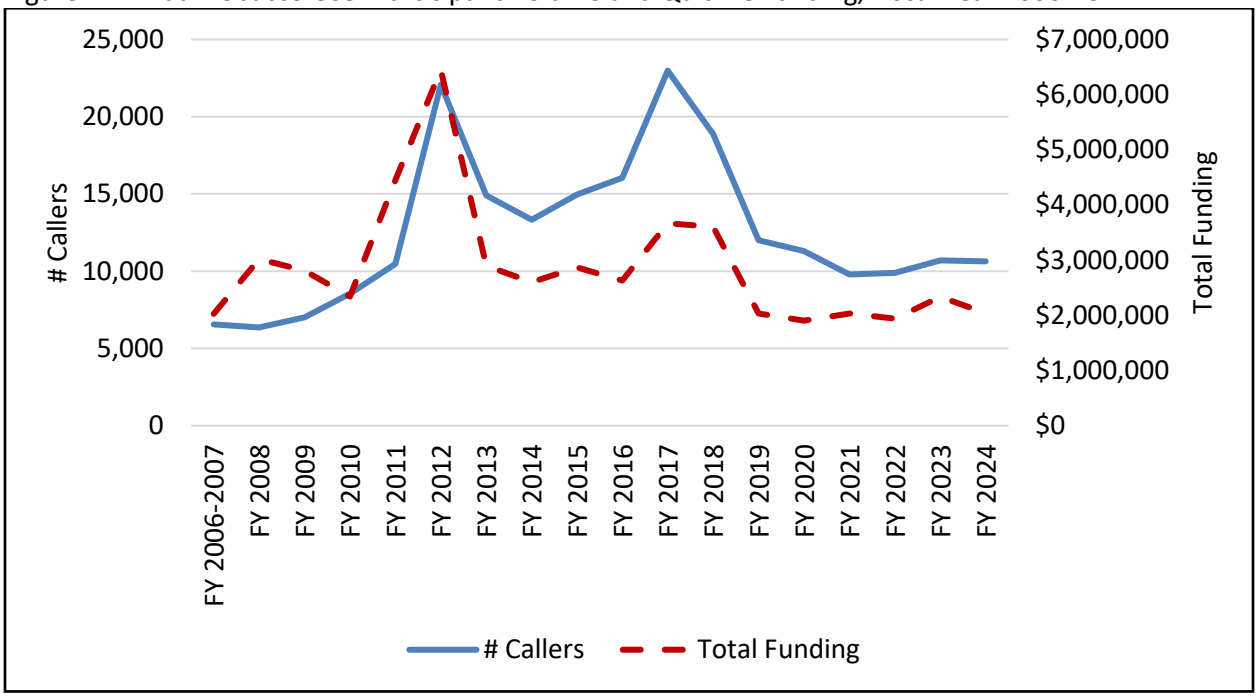
III. Key Findings and Outcomes

All data presented in this report reflect unique QuitlineNC participants who registered in Fiscal Year 2024 (i.e., participants who registered for services more than once during the year are counted only once).

A. To what extent does QuitlineNC reach NC tobacco users?

In FY 2024, 10,632 North Carolinians registered for QuitlineNC services (Figure 1), which is very similar to number of registrations in FY 2023 (10,701) and an 8% increase from FY 2022 (9,891).

Figure 1. Annual Tobacco User Participant Volume and Quitline Funding, Fiscal Year 2006-2024



*Funding levels represent state level funding for services and promotion and does not include federal promotional funding (i.e., *Tips* campaign funding). Annual participant volume reflects unduplicated participants, but duplication of participants may exist across years.

Yearly funding levels continue to closely correlate with the number of participants that enroll in QuitlineNC.

Promotional reach is measured by the proportion of a state's tobacco users who register for QuitlineNC in a given year, and treatment reach is measured by the proportion of the state's tobacco users who receive evidence-based cessation treatment.[13] In the current Rally platform, any completed coaching session from any modality is considered treatment (call, text, web). In FY 2024, the promotional reach of

QuitlineNC was 0.86%, similar to last year and higher than the year before last (0.87% in FY 2023, and 0.73% in FY 2022).

Of the participants who registered this year, 8,945 received at least one coaching session from any modality. This corresponds to a treatment reach of 0.72% for FY 2024, similar to last year (0.70% in FY 2023) and slightly lower than the most recently available national estimate (0.84% in FY 2023).[13] The similar reach compared to the previous fiscal years corresponds to the similar numbers of registrations across the two years.

The CDC Best Practices for Comprehensive Tobacco Control Programs sets an ambitious target treatment reach for state Quitlines, recommending that they seek to reach 8% of their state's tobacco users annually[14], and the North American Quitline Association set a goal of 6% treatment reach in FY 2023.[13] Achieving either goal requires funding resources for Quitline services and promotion at significantly higher levels than those currently available to QuitlineNC.

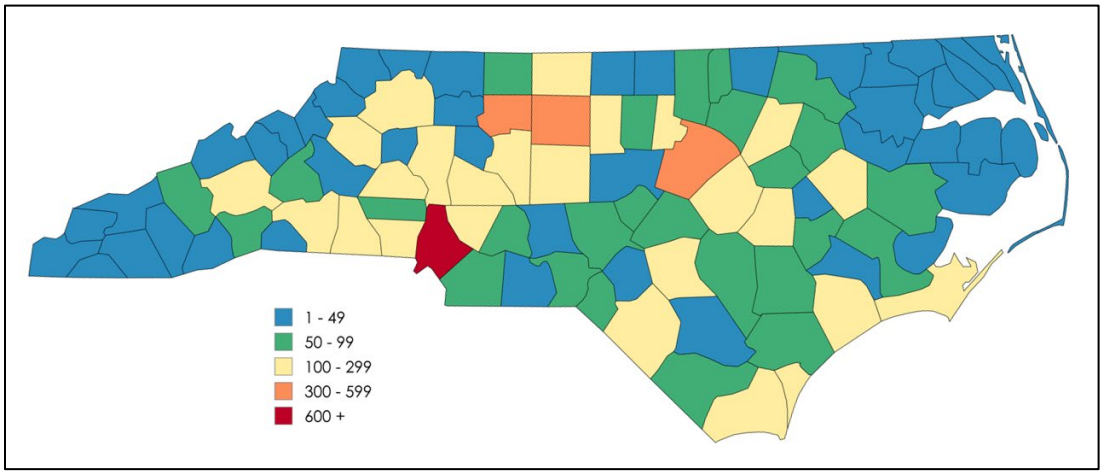
Although the new Rally platform focuses on providing cessation coaching across multiple modalities, 81% of QuitlineNC participants enrolled via phone in FY 2024 (n=8,617), while 13% enrolled digitally (text or web, n=1420). The remaining 6% were enrolled after being referred to the Quitline (n=595).

QuitlineNC received 5,444 referrals in FY 2024, from more than 350 facilities, primarily clinics and hospitals (72%). At least 44 of the facilities that submitted referrals were behavioral health or cessation focused clinics, which accounted for 30% of the referrals (n=1,617). Some referrals were also received from insurance providers. The three most common referral facilities were the Duke Smoking Cessation Program, the UNC Lineberger Comprehensive Cancer Center, and the UNC Nicotine Dependence Program (recently renamed the UNC Tobacco Treatment Program). TPCB conducts outreach to healthcare providers and trainings on Quitline referrals and tobacco treatment standard of care to help support and sustain the volume of referrals to QuitlineNC.

B. Who calls QuitlineNC?

Tobacco users from every county in NC called QuitlineNC in FY 2024 (Figure 2). The counties with the most registered participants were Forsyth (n=488), Guilford (n=549), Wake (n=585) and Mecklenburg counties (n=1,079).

Figure 2. Participant Volume by County (n=10,632)



People who registered for QuitlineNC (Table 1) were predominantly female (60.2%, n=6,404), white (57.7%, n=6,136), and not Hispanic or Latino (85.1%, n=9,045). The majority of participants (65.1%, n=6,923) were between the ages of 35-64 years old. Twenty-eight percent of participants were enrolled in Medicaid (n=2,987). Slightly less than half of participants had a high school education or less (44.7%, n=4,744).

Table 1. QuitlineNC Participant Demographics (n=10,632)

Demographic Characteristic		Total #s	Total %
Gender	Female	6,404	60.2%
	Male	3,952	37.2%
	Non-binary, Genderqueer	19	0.2%
	Transgender	14	0.1%
	Unknown	240	2.3%
Age	17 and under	0	0.0%
	18 – 24	312	2.9%
	25 – 34	1,249	11.8%
	35 – 64	6,923	65.1%
	65 and older	2,146	20.2%
	Unknown*	2	0.02%
Race	White	6,136	57.7%
	Black/African American	2,365	22.2%
	American Indian/Alaskan Native	245	2.3%
	Multiple Races	182	1.7%
	Asian or Asian American	37	0.4%
	Native Hawaiian or Other Pacific Islander	13	0.1%
	Not Listed	30	0.3%
	Unknown*	1,624	15.3%
Ethnicity	Hispanic or Latino	299	2.8%
	Not Hispanic or Latino	9,045	85.1%
	Unknown*	1,288	12.1%
Sexual Orientation	Heterosexual/Straight	7,418	69.8%
	Lesbian, Gay, or Bisexual	415	3.9%
	Other	244	2.3%
	Unknown*	2,555	24.0%
Health Insurance Status	Medicaid	2,987	28.1%
	Medicare	2,505	23.6%
	Private Insurance	2,460	23.1%
	No insurance	2,281	21.5%
	Military	112	1.1%
	Unknown*	287	2.7%
Education Level	Less than High School Diploma	1,602	15.1%
	High School Diploma/GED	3,142	29.6%
	More than High School Diploma	4,031	37.9%
	Unknown*	1,857	17.5%

*Unknown includes refused, not collected, not asked, does not know and missing.

As shown in Table 2, most participants (64.0%, n=6,807) only smoked cigarettes, and did not use any other tobacco products. This is somewhat lower than the previous year (FY 2023, 71.2%, n=7,623). Dual

use of cigarettes and other tobacco products (12.8%, n=1,363) was less than FY 2023 (20.3%, n=2,174). Ten percent of program participants used both cigarettes and e-cigarettes (n=1,055), also slightly less than FY 2023 (13.8%, n=1,477).

Table 2. QuitlineNC Participant Tobacco Use and Health Characteristics (n=10,632)

Tobacco Use/Health Characteristics	Total #s	Total %
Tobacco use		
Cigarettes only	6,807	64.0%
Cigarettes and other tobacco products (includes e-cigarettes)	1,363	12.8%
Cigarettes and e-cigarettes	1,055	9.9%
Other tobacco products only (includes e-cigarettes)	956	9.0%
Missing cigarette or other tobacco product data	1,506	14.2%
Cigarette smokers' smoking intensity (n=8,727)		
Light (0-10 cpd)	2,461	28.2%
Moderate (11-19 cpd)	1,290	14.8%
Heavy (20+ cpd)	4,726	54.2%
Unknown	250	2.9%
Nicotine dependence		
Use tobacco within 5 minutes of waking	4,728	44.5%
Use tobacco within 30 minutes of waking (including within 5 minutes)	7,883	74.1%
Unknown	1,236	11.6%
Readiness to Quit		
Quit Date Not Set	178	1.7%
Contemplator	607	5.7%
Ready To Quit	8,261	77.7%
Already Quit	869	8.2%
Unknown	717	6.7%
Health status		
Tobacco-related health condition*†	4,477	47.4%
Reported any mental health condition	5,027	54.0%
Pregnancy status (female callers only, n=6404)		
Planning pregnancy, pregnant, or breastfeeding	129	2.0%

cpd: cigarettes per day

* Excludes participants with missing data

† Includes asthma, chronic obstructive pulmonary disease (COPD), coronary artery disease (CAD), chronic lower respiratory disease (CLRD), type 1 diabetes, type 2 diabetes, high blood pressure, high cholesterol, cancer, chronic pain, heart attack, heart disease, heart failure, kidney disease, or stroke

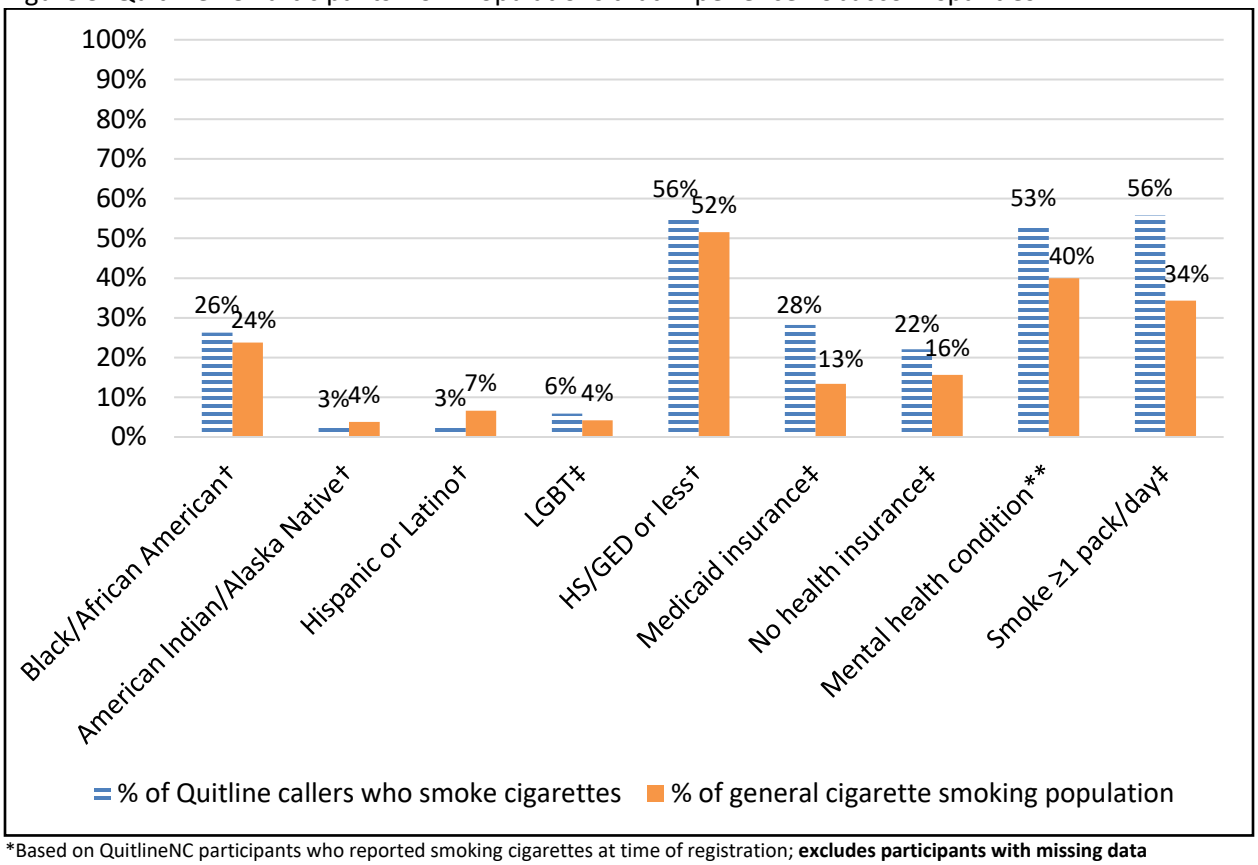
‡Includes depression, ADHD, bipolar, anxiety disorder, PTSD, or schizophrenia

More than half of participants who smoke cigarettes indicated heavy use, with 54.2% (n=4,726) smoking at least one pack (20 cigarettes) per day. Nearly three quarters (74.1%, n=7,883) of program participants use tobacco within 30 minutes of waking up, an indicator of high nicotine dependence. Forty-seven percent of QuitlineNC program participants reported having a tobacco-related health condition (n=4,477), such as COPD. Over three quarters of program participants reported that they were ready to quit (77.7%, n=8,261). More than half of participants reported having any mental health condition (54.0%, n=5,027). Two percent of female participants (2.0%, n=129) were planning a pregnancy, pregnant, or breastfeeding at the time of their Quitline registration.

QuitlineNC is successfully reaching participants from populations that experience disparities in tobacco use and tobacco-related diseases and/or have more difficulty quitting (Figure 3). In FY 2024, participants who were Black or African American, were LGBT, had a high school education or less, had Medicaid insurance, had no health insurance, had a mental health condition, or smoked more than a pack a day made up a similar or greater proportion of participants compared to the estimated proportion of people in North Carolina who smoke cigarettes that fit within each population. However, participants who are American Indian or Alaska Native or Hispanic or Latino continue to make up a smaller proportion of participants compared to their estimated proportion of people in North Carolina who smoke cigarettes.

The high proportion of participants from populations that have higher tobacco use may be a result of the various activities implemented by TPCB to reach these populations. In addition to working with healthcare providers to provide technical assistance and encourage Quitline referrals, TPCB staff have conducted programs and other outreach with community organizations, advocates, community health workers and other organizations that provide services to these communities. Although enrollment from Native American's is still lower than expected, TPCB staff have continued outreach to this community at Pow Wows and other events.

Figure 3. QuitlineNC Participants from Populations that Experience Tobacco Disparities*

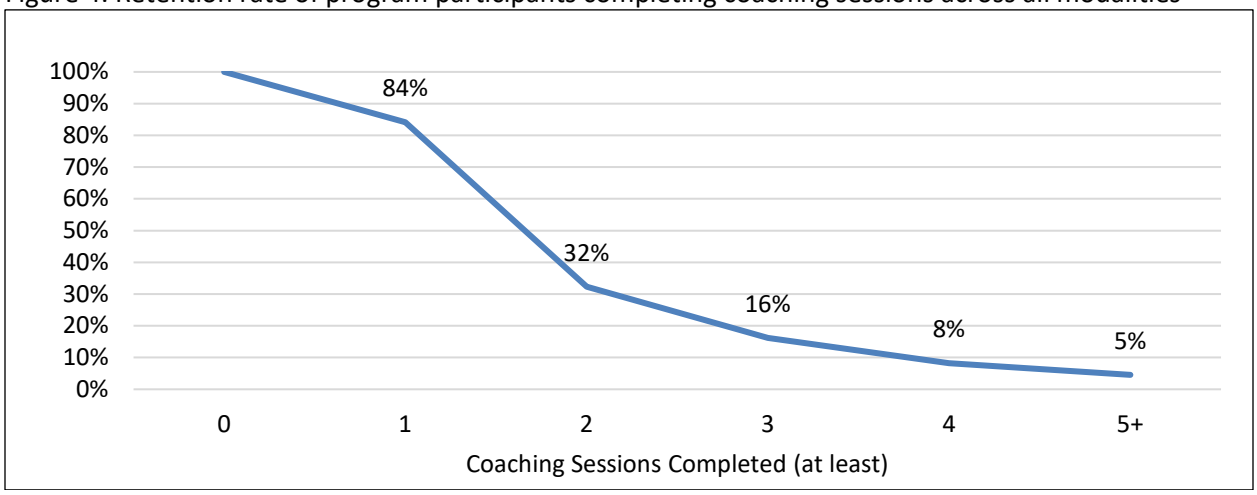


*Based on QuitlineNC participants who reported smoking cigarettes at time of registration; **excludes participants with missing data**
†Smoking estimate based on 2022 NC Behavioral Risk Factor Surveillance Survey [15]
‡Smoking estimate based on 2020 or 2021 National Health Interview Survey [16,17]
**Estimate based on 2022 National Survey on Drug Use and Health [18]
Population estimates from US Census Population Estimates 2023[19], 2022 NC Behavioral Risk Factor Surveillance Survey [15] and 2019 estimates from Kaiser Family Foundation[20]

C. How do participants engage with QuitlineNC services?

Most Quitline participants in FY2024 registered in the Standard Care support track (55%, n=5,880). The next most used support tracks were the Behavioral Health Protocol (32%, n=3,370), and the Medicaid Partner support track (8%, n=888). Overall, 51.8% of participants only completed one coaching session across any modality, and very few (4.6%, n=484) completed at least 5 coaching sessions (the goal for the standard plan). There is a substantial drop off between participants completing at least 1 coaching session (84%) and participants completing at least 2 coaching session (32%) (Figure 4). More than half of participants drop out of the program between the first and second coaching session.

Figure 4. Retention rate of program participants completing coaching sessions across all modalities



Certain participant characteristics were associated with completing the recommended 5 coaching sessions: including being older, being lesbian, gay, or bisexual, having health insurance, and having a mental health condition (Table 3).

Table 3. Participant characteristics associated with completing at least 5 coaching calls

Participant Characteristic		**All registered participants**	**Completed 5+ coaching sessions (#)**	**Completed 5+ coaching sessions (%)**
Full Sample		10,632	484	4.6%
Age Group	18 – 24	312	7	2.2%
	25 – 34	1,249	41	3.3%
	35 – 64	6,923	338	4.9%
	65 and older	2,146	98	4.6%
Sexual Orientation	Heterosexual or Straight	7,418	373	5.0%
	Lesbian gay or Bisexual	415	29	7.0%
	Other	244	7	2.9%
Insurance	Medicaid Insurance	2,987	130	4.4%
	Medicare Insurance	2,505	130	5.2%
	Military	112	4	3.6%
	Private Insurance	2,460	136	5.5%
	No insurance	2,281	68	3.0%
Mental Health	Mental health condition	5,027	324	6.4%
	No mental health condition	4,284	128	3.0%

QuitlineNC is able to provide some forms of over-the-counter NRT, including patches, gum, or lozenges, to medically eligible participants. Access to prescription-based pharmacotherapy (e.g., bupropion and varenicline) is not available through the Quitline. QuitlineNC uses a health equity framework to prioritize funds for NRT for populations that are in most need, for example, participants without health insurance. The availability and amount of free NRT for participants varied for different groups based on health insurance status (Table 4). Participants with Medicaid are eligible to receive 2 weeks of NRT and a standing order to pick up additional NRT from their pharmacy free of charge. Partnerships reimburse QuitlineNC for NRT offered to their members. While many participants were eligible for NRT during FY 2024, it is important to note that the best practice of at least 6 to 8 weeks of combination NRT (patch plus gum or lozenge) was not uniformly available to all participants; expanding access to this level of evidence-based pharmacotherapy may support improved cessation outcomes among Quitline users, but also requires increased funding for QuitlineNC.[15]

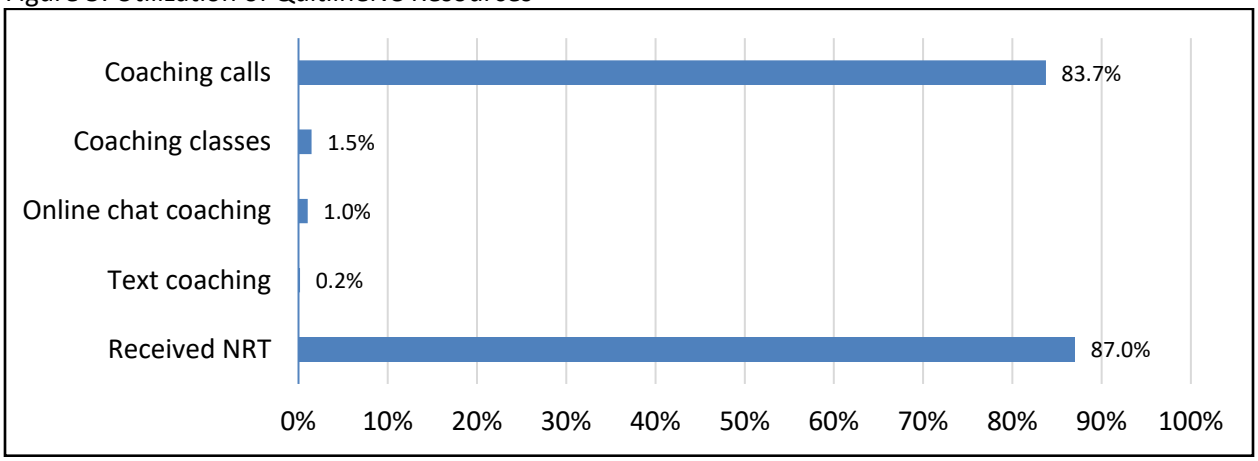
Table 4. NRT Offerings During FY 2024 for Program Participants

Populations	**NRT Offerings**
Medicaid enrollee	2 weeks of combination NRT plus standing order for 12 more weeks of combination NRT
Medicare enrollee	8 weeks of combination NRT
BCBSNC enrollee	12 weeks of combination NRT
Uninsured participants not covered by other categories	8 weeks of combination NRT
Insured participants not covered by other categories	2 weeks of combination NRT
Participants with a mental health condition*	12 weeks of combination NRT
American Indian	12 weeks of combination NRT
Pregnant women	8 weeks of patch, gum, or lozenge with medical override
Active-Duty Military	8 weeks of combination NRT
Rock House Farm Family of Brands	12 weeks of combination NRT for any employee
Participants 17 years old and younger	No NRT

*Such as depression, ADHD, bipolar, anxiety disorder, PTSD, or schizophrenia

Participants utilized various types of support and resources offered through QuitlineNC (Figure 5). A large majority of participants utilized coaching calls (83.7%, n=8,904), while much smaller percentages utilized coaching classes (1.5%, n=156) or online coaching chats (1.0%, n=110), and very few utilized text coaching (0.2%, n=18). More than 86% of participants who were eligible received NRT (n=9,119).

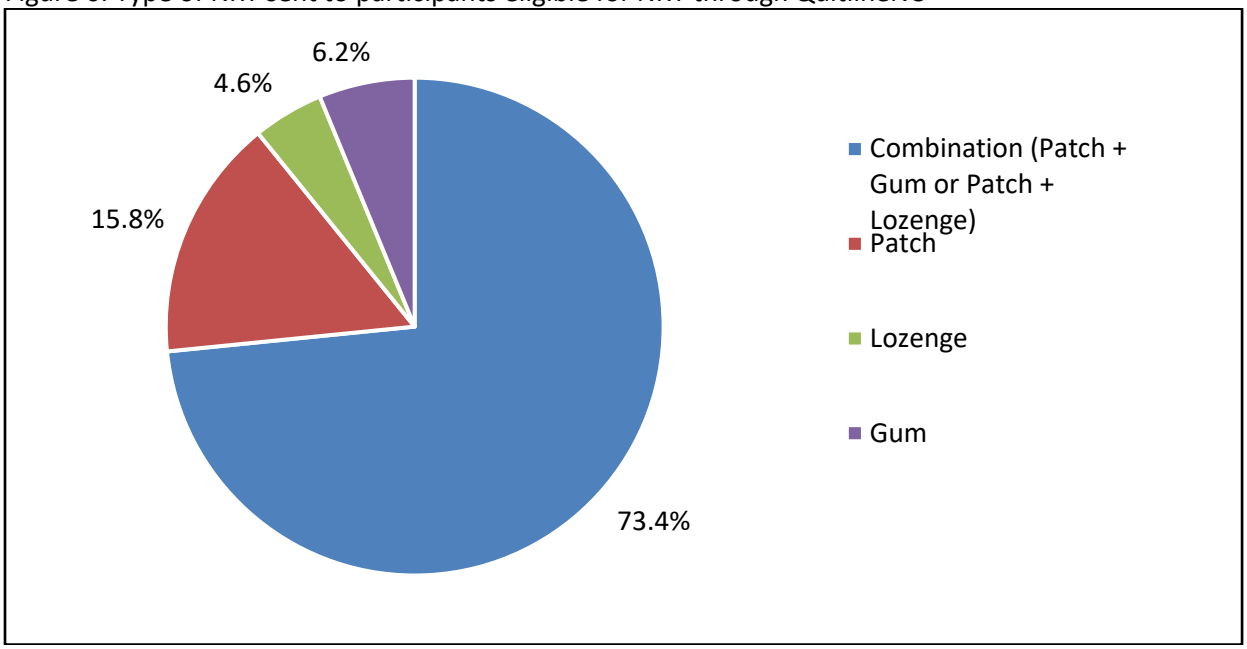
Figure 5. Utilization of QuitlineNC Resources



*Percent of participants who were eligible to receive NRT, see Table 4 for eligibility criteria

Nearly three quarters (73.4%, n=6,694) of eligible participants who were sent NRT from QuitlineNC received combination NRT, which is patches with either lozenges or gum (Figure 6). Most other participants received patches alone (15.8%, n=1,434). A large majority of participants in the 7-month follow-up survey reported receiving NRT from QuitlineNC (88.4%, n=900), very similar to last year (87.6% FY 2023). Of those that reported receiving NRT from QuitlineNC, 32.9% reported using all the NRT (n=296), and 38.1% reported using most of the NRT (n=343).

Figure 6. Type of NRT sent to participants eligible for NRT through QuitlineNC



Participants with Medicaid insurance were eligible to receive 2-weeks of NRT and a 'standing order' that allowed them to pick up additional NRT from their pharmacy without an additional copay. Only 17% of Medicaid participants in the follow-up survey reported receiving standing order paperwork. Of the participants that received standing order paperwork, only 14% used it to pick up NRT from a pharmacy. It may be worthwhile to consider making at least 6 to 8 weeks of combination NRT available to Medicaid recipients directly through the Quitline given the currently low utilization of standing order paperwork.

D. What impact does promotion have on QuitlineNC participant volume?

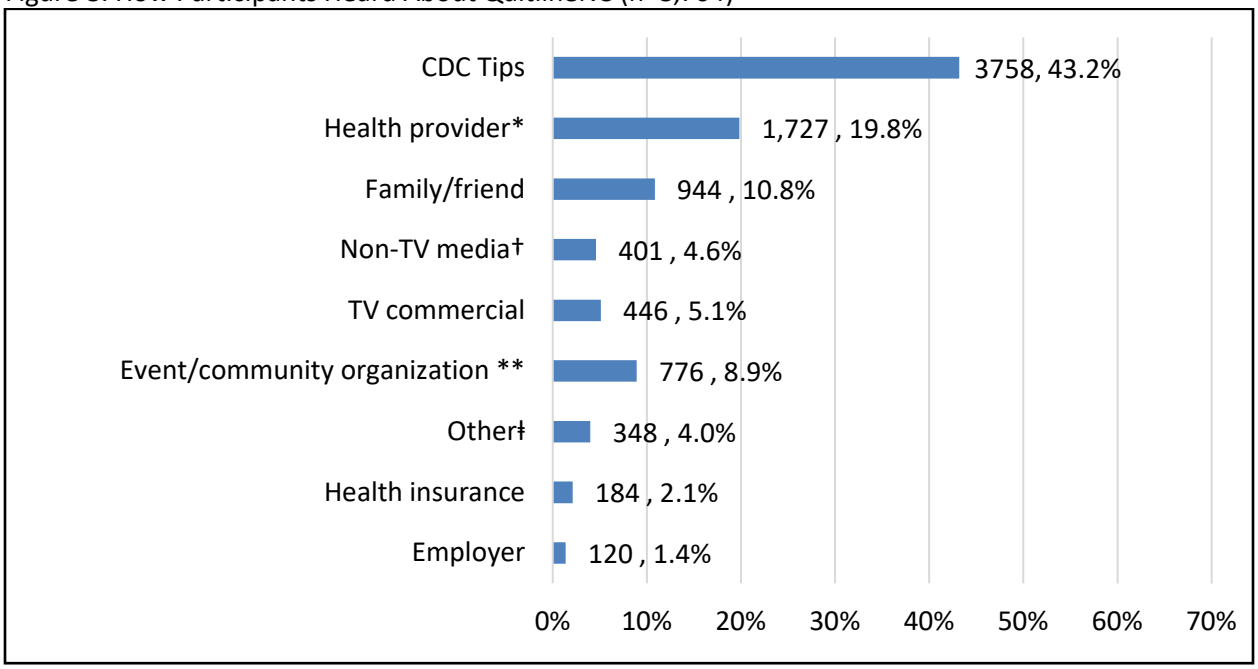
In FY 2024, there was wide-scale promotion at the state level in addition to the *Tips from a Former Smoker* campaign at the federal level, which continued after starting in FY 2022. During the times when the federal *Tips* campaign was off the air, TPCB was able to fund a statewide *Tips* campaign. TPCB continued a statewide campaign called *Quit and Live*, focusing on the health benefits of quitting smoking and promoting QuitlineNC, which won the "Tiny But Mighty" silver award at the Healthcare Marketing Impact Awards.[22] Additional QuitlineNC promotion efforts during the evaluation period included a *Live Vape Free* media campaign.

In-person outreach included outreach and promotion at events across North Carolina, including Pride Events, Pow Wows, and the Great American Smokeout (Figure 7). TPCB continued outreach to healthcare providers and partners to encourage referrals to QuitlineNC and educate about tobacco cessation best practices, including Tobacco Treatment Specialist trainings, conducted in partnership with the Duke UNC Tobacco Treatment Specialist Training Program.

Figure 7. Tabling and Pride Event in Carrboro, NC

Of the participants that shared how they heard about the quitline, the CDC *Tips Campaign* was the most common source (43.2%). The next most frequent sources were health providers and a family member or friend (19.8% and 10.8% respectively) (Figure 8). Other frequent sources included non-TV media and TV commercials. Hearing about the Quitline from health insurance, an employer, at an event, or from a community organization was less frequent.

Figure 8. How Participants Heard About QuitlineNC (n=8,704)

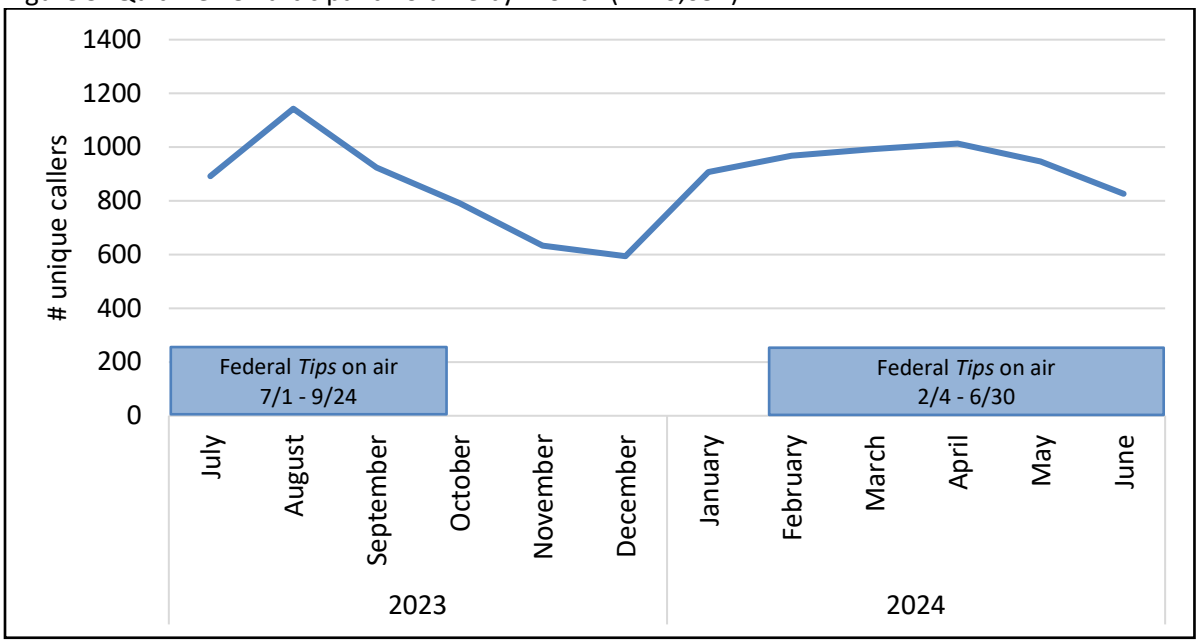


*Health provider includes Health Department, Health Professional
‡Other includes Other, TV/News, Retailer, Healthline
†Non-TV media includes Newspaper/Magazine, Online (Paid Search, Google, Mobile App), Outdoor Ad, Print Material, Radio, Social Media, Website
**Event/Community Organization includes Event, Community Organization, LGBT Pride Event, Military Referral or Event

The federally funded CDC *Tips from Former Smokers* campaign (*Tips*)®, including information about the Quitline, were on in North Carolina during the first part of FY 2024 (July 1 to September 24, 2023) (Figure 9).[23] Federal *Tips* ads were on again starting February 4, 2024, and continued through the end of FY 2024.

On a monthly basis, federally funded mass media campaigns continue to coincide with the highest monthly QuitlineNC registration volume (Figure 8). Funding was provided in FY 2024 for statewide Quitline promotion, ongoing from FY 2022, including an extension of the *Tips from Former Smokers* campaign during weeks when the federally funded promotion was not running. The statewide campaign airing *Tips* and other smoking cessation ads during the time that the federal *Tips* was off air may have also helped participant volume in FY 2024. Evidence suggests that Quitline promotions may have a threshold effect, meaning that media buys below a certain number of gross rating points are unlikely to measurably increase Quitline participant volume.[12] Further increasing funding for promotion, and increasing partnerships with health insurance providers, employers, and others may help support future growth in participant volume.

Figure 9. QuitlineNC Participant Volume by Month (n=10,632)



E. How effective are QuitlineNC services?

A survey was conducted via web and telephone to assess QuitlineNC participants' satisfaction with the Quitline, as well as tobacco use status at seven months post-Quitline registration, which approximates a quit rate for six months after a one-month treatment period. The sampling frame for surveys was selected from tobacco users aged 18 and older who registered between June 2023 and October 2023, had valid contact information (e.g., phone, email, mailing address), completed at least one intervention coaching call, and consented to follow-up. Participants who were in the previous year's follow-up survey sample were excluded. Participants who only provided contact information for temporary shelters, substance abuse treatment facilities or behavioral treatment centers were excluded (phone and address match a known facility with no alternative phone or email address). The sample size goal for the follow up survey is to sample 500 participants from each registration month to be included in the sample, yielding a sample of 2,500 across 5 months. There were only 425 eligible participants who enrolled during October 2023, so additional participants were selected from August and September to ensure the 2500 sample size. During the follow up survey, 23 participants were removed due to duplicates from previous years or within the current sample, or because the participant was deceased, yielding the final sample size of 2,477.

Pre-notification letters were mailed to all participants approximately two weeks prior to their first eligible phone survey date. The letter provided information about the survey, including a link to the web-based survey, a $1 pre-survey incentive, notification of a $15 survey completion incentive, and contact information for the evaluation staff at TPEP. Three percent (n=74) of all pre-notification letters mailed to participants were returned. Participants that provided their email address at registration and agreed to be contacted via email were emailed the survey notification with the link to participate. If participants did not complete the web-based survey during the two-week notification period, the

Carolina Survey Research Lab (CSRL) contacted them via telephone to complete the survey. CSRL made a maximum of 10 telephone attempts for each participant, spread out over different times and days.

The overall survey response rate was 41% (n=1,018), similar to FY 2023 (42%) and higher than FY 2022 (38%). More than a third (39%, n=392) of participants who completed the survey completed it by web via a link in a letter or email. Reaching out to participants via letter and email to complete the web survey has helped maintain the response rate, and it is possible that increasing the survey incentive from $10 in previous years to $15 in the current year helped improve the response rate compared to last year.

Table 5. Participant Characteristics associated with Response Rate (n=2,477)

Participant Characteristic		**Included in Sample (#)**	**Completes (#)**	**Response Rate (%)**
Full Sample		2,477	1,018	41%
Education	Less than high school	419	142	34%
	High school/GED	740	289	39%
	More than high school	974	455	47%
Cigarette Smoking Intensity	Light (0-10 cpd)	610	276	45%
	Moderate (11-19 cpd)	317	140	44%
	Heavy (20+ cpd)	1,177	451	38%
Coaching Sessions Completed	1 session	1,548	547	35%
	2 - 4 sessions	771	370	48%
	5+ sessions	149	95	64%

In the follow-up survey, 59.5% of respondents reported being “very satisfied” with the Quitline, and 83.8% reported being “very” or “mostly satisfied” (Table 6). When asked if they would use the Quitline if they were to seek help again, 72.6% of respondents chose the response option “yes, definitely”, and 19.7% chose the response option “yes, I think so”. A total of 92.3% said “yes” they would use the Quitline again (either “yes, definitely” or “yes, I think so”).

Table 6. Satisfaction with Quitline (n=1,018)

Satisfaction	**#**	**%**
Very satisfied	606	59.5%
Mostly satisfied	242	23.8%
Somewhat satisfied	119	11.7%
Not at all satisfied	45	4.4%
Missing	6	0.6%
Would Use Quitline Again	**#**	**%**
Yes, definitely	739	72.6%
Yes, I think so	200	19.7%
No, I don’t think so	42	4.1%
No, definitely not	24	2.4%
Missing	13	1.3%

Table 7 presents the 30-day quit rate point prevalence (i.e., no tobacco use in past 30 days) for responders and the 30-day quit rate point prevalence using an intent-to-treat approach at the 7-month follow-up. It is important to note that the responder quit rate only includes people who responded to the survey, while the intent-to-treat quit rate includes people who responded to the survey and assumes that people that did not respond to the survey continued to use tobacco. The responder quit

rate is an overestimate of the actual quit rate, while the intent-to-treat quit rate is an underestimate. The true quit rate likely lies somewhere in between these two measures.

Additionally, the North American Quitline Consortium (NAQC) recommends reporting quit rates in two ways. The "conventional tobacco use quit rate" considers participants to have quit when they have abstained from any conventional tobacco products (e.g., cigarettes, cigars, pipes, smokeless tobacco) in the past 30 days. The "conventional plus e-cigarette use quit rate" considers participants to have quit when they have abstained from both conventional tobacco products **and** from e-cigarettes in the past 30 days.[25]

QuitlineNC participants in FY 2024 achieved a 30-day conventional tobacco quit rate between 15.7% (intent-to-treat) and 38.3% (responders). Participants achieved a 30-day conventional tobacco plus e-cigarette quit rate between 13.3% (intent-to-treat) and 32.4% (responders).

Table 7. Tobacco use at 7-month follow-up

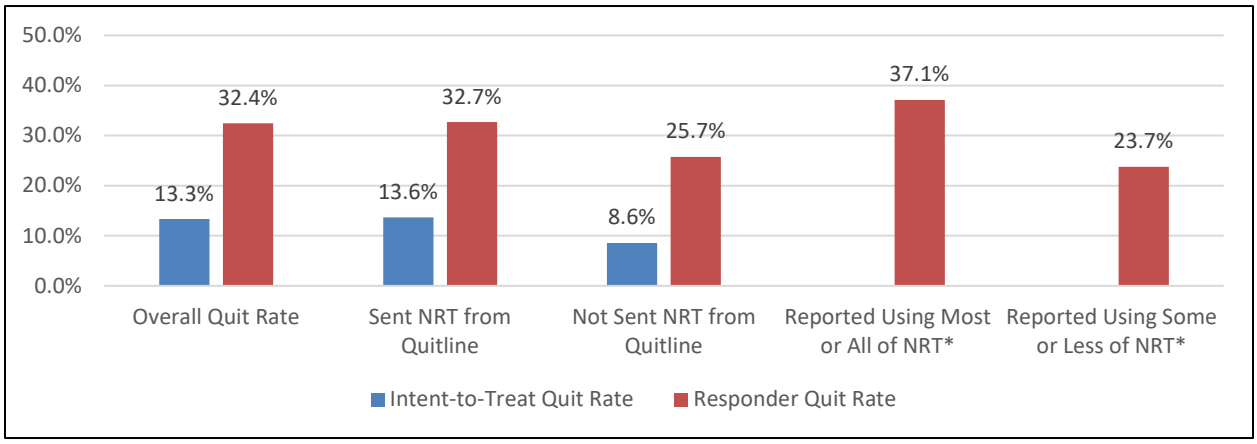
30-day conventional tobacco use quit rate	**# quit**	**% (95% CI)**
Responder quit rate (n=1,018)	390	38.3% (35.3% - 41.4%)
Intent-to-treat quit rate (n=2,477)	390	15.7% (14.3% - 17.3%)
30-day conventional tobacco plus e-cigarette use quit rate	**# quit**	**% (95% CI)**
Responder quit rate (n=1,018)	330	32.4% (29.6% - 35.4%)
Intent-to-treat quit rate (n=2,477)	330	13.3% (12.0% - 14.7%)
Quit attempts & behavior changes	**n**	**%**
Quit attempt made*	880	86.4%
Reduced cigarettes per day†	395	72.0%
Increased length of time before using tobacco after waking†	220	42.2%

*Stopped tobacco use for at least 24 hours in a quit attempt
†Excludes missing data

Figures 10 through 13 present the 30-day point prevalence conventional tobacco plus e-cigarette responder quit rates and the 30-day point prevalence conventional tobacco plus e-cigarette intent-to-treat quit rates at 7-month follow-up by subgroups of interest. As noted above, responder quit rates do not account for the tobacco use status of non-respondents to the follow-up survey, and are an overestimate of the actual quit rate, while intent-to-treat quit rates are an underestimate of the actual quit rate. For variables assessed during the 7-month follow-up survey, an intent-to-treat quit rate cannot be calculated because this data is unknown for people who did not respond to the follow-up survey.

QuitlineNC sends nicotine replacement therapy to eligible participants. Where administrative records indicate that participants were sent NRT from the Quitline, both intent-to-treat and respondent quit rates are similar to the overall quit rate. Where administrative records indicate that participants were not sent NRT from the Quitline had substantially lower quit rates (Figure 10). Among participants that reported using all or most of the NRT that they received, the responder quit rate is higher than the overall responder quit and substantially higher than the responder quit rate among participants who reported using some or none of the NRT that they received from the Quitline. These findings indicate that receiving and using NRT from the quitline increases the likelihood that a participant will be able to quit.

Figure 10. 30-day conventional tobacco plus e-cigarette use quit rates by Nicotine Replacement Therapy Utilization

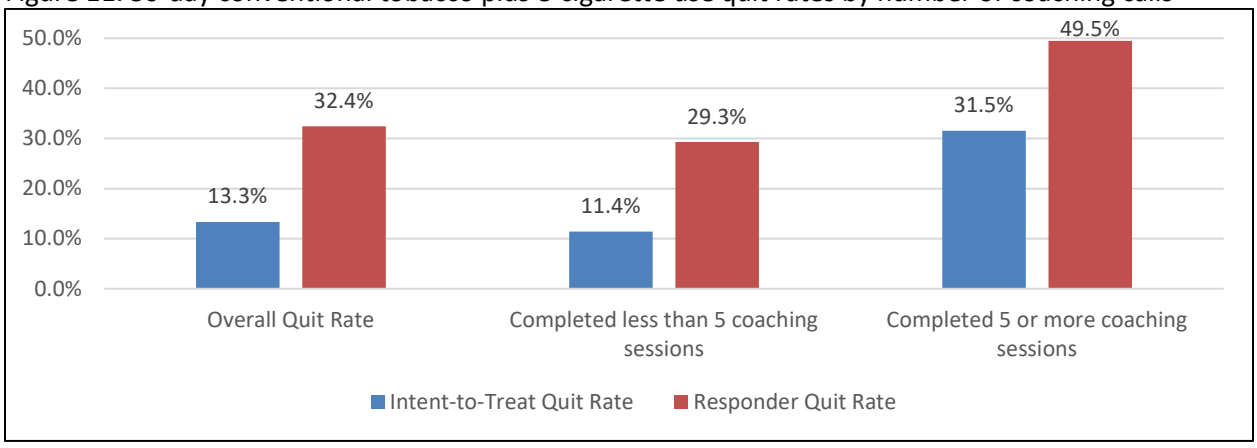


* This subgroup was assessed during 7-month follow-up, so it is unknown how many non-responders fit into this category and the Intent-to-Treat Quit Rate could not be calculated

However, without biomarker verification of quitting, it is possible that the higher quit rate for people that report using all or most of the NRT provided by the Quitline may reflect some underlying response bias. Response bias can occur when some participants respond to questions in a way that they believe correspond to what interviewers are hoping for, instead of being completely honest. Such potential biases are a known factor in evaluations and several safeguards, such as appropriately training interviewers, are included in evaluation protocols to minimize biases as much as possible.

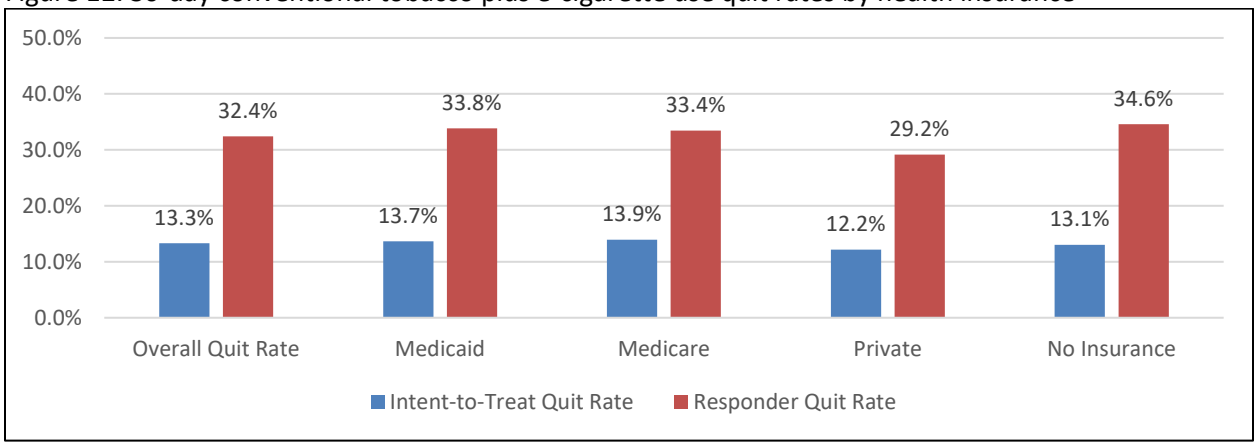
Quit rates among participants who completed five or more coaching sessions were substantially higher than quit rates among participants who completed less than five sessions (Figure 11). Higher quit rates among participants that complete more coaching sessions indicates that programs should do all they can to encourage participants to stick with and complete coaching programs.

Figure 11. 30-day conventional tobacco plus e-cigarette use quit rates by number of coaching calls



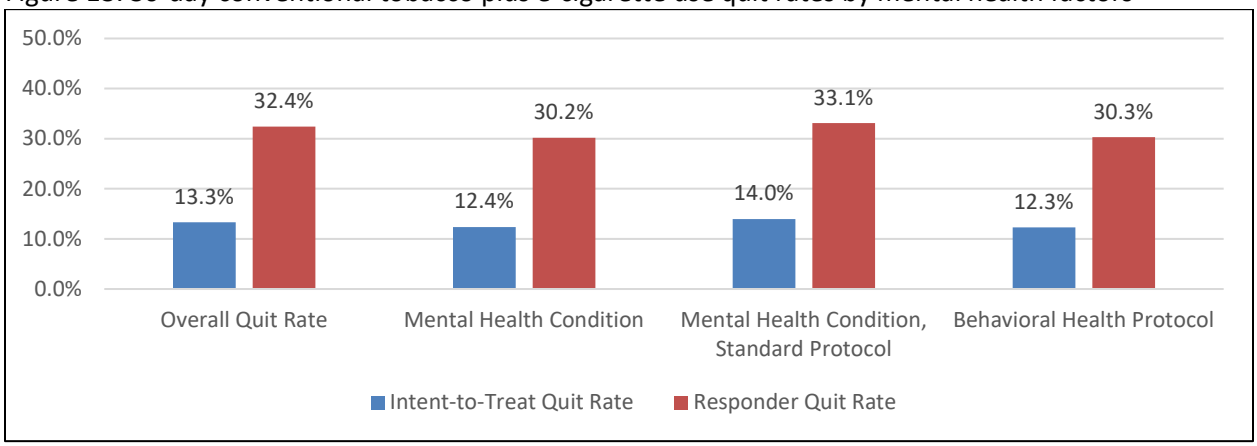
Quit rates among participants across insurance categories were similar to the overall quit rates, but slightly lower among participants with private insurance (Figure 12).

Figure 12. 30-day conventional tobacco plus e-cigarette use quit rates by health insurance



QuitlineNC provides a behavioral health protocol for increased intervention intensity for people that are experiencing difficulties with their mental health (Figure 13). Quit rates for people that report a mental health condition appear to be slightly lower than the overall quit rate for QuitlineNC. Compared to people with a mental health condition in the standard protocol, the people in the behavioral health protocol appear to have lower quit rates. Additional metrics, such as quit attempts can provide key context for assessing program success. A similar proportion of participants (85%) in the behavioral health protocol made a quit attempt since enrolling in the program to the percent of quitline participants overall in FY 2024.

Figure 13. 30-day conventional tobacco plus e-cigarette use quit rates by mental health factors



There are a number of factors that could influence quit rates among people with mental health conditions, including severity of mental health distress and the number of coaching calls completed. Additional analyses of these factors over multiple years of data found people with mental health conditions who enrolled in the behavioral health protocol or did not enroll were similar in terms of demographics and socioeconomic factors but differed in terms of insurance type and nicotine dependence. While quit rates for people who enrolled in the behavioral health protocol were lower than people who did not enroll, other indicators of program utilization and cessation were similar or higher for the behavioral health protocol group, such as coaching calls, NRT being sent, and quit attempts being

made.[26] This work has been submitted to the National Conference on Tobacco or Health in 2025, and a peer reviewed brief report is also planned.

Multivariable logistic regression was used to identify factors associated with tobacco use quit status at 7-month follow-up (Table 8). Odds of quitting were higher for people who completed more coaching sessions. Odds of quitting were marginally lower for people who smoked more cigarettes per day. Other factors were included in the model but were not significantly related to quitting: age, gender, race, ethnicity, education, chronic disease, mental health condition, receiving NRT from the Quitline, and health insurance.

Table 8. Correlates of having quit at 7-month follow-up: Adjusted odds ratios* for multivariable logistic regression model of 30-day point prevalence tobacco use abstinence at 7-month follow-up (n=697)†

	Adjusted odds ratio (95% Confidence Interval)	***p*-value**
Number of cigarettes per day	0.98 (0.97 – 1.0)	0.0503
Number of coaching sessions completed	1.17 (1.04 – 1.30)	0.0079

*Model is adjusted for age, gender, race, ethnicity, education, chronic disease, mental health condition, receiving NRT from the Quitline, and health insurance

†Only includes respondents with complete information on all variables included in the model

F. How cost effective are QuitlineNC services?

Cost per participant is a measure of the efficiency by which QuitlineNC reaches tobacco users with cessation support (Table 9). Cost per participant is estimated based on the number of people who received evidence-based services (treatment reach) provides the upper end of cost per participant estimates, at $228, and cost per participants who completed registration provides the lower end at $192. This estimate is lower than estimates from the previous year (FY 2023, cost per registration $218, cost per treatment $271).

Table 9. Cost Per Participant

Total expenditures	**Registration reach***	**Treatment reach†**	**Cost per registration reach**	**Cost per treatment reach**
$ 2,037,154	10,632	8,945	$ 192	$ 228

*Tobacco users who completed a registration call[9]

†Tobacco users who completed a registration call and received evidence-based services (i.e., completed at least one cessation coaching call)[9]

Cost per quit provides a measure of outcome efficiency. Both responder and intent-to-treat 30-day quit rates are used to estimate the cost per quit; the true cost per quit lies somewhere between these values, $703 - $1,709 (Table 10). The cost per quit is similar to the previous year (FY 2023: $807 - $1,907).

Another metric of quitline cost is spending per smoker, which estimates the amount spent on quitlines divided by the estimated number of adult cigarette smokers in each state. In FY 2024, the spending per smoker for QuitlineNC is $1.64 for each estimated cigarette smoker in North Carolina. The North American Quitline Association set a spending per smoker goal of $10.53 in FY 2023, and average spending per smoker across NAQC members in FY 2023 was $2.23. This indicates that North Carolina is not spending enough on Quitline services and promotion to reach the large number of people in the state that use tobacco.

Table 10. Cost per Quit*

Quit rate estimate	# of participants quit	Cost per quit
Responder rate		
32.4%	2900	$ 703
Intent-to-treat rate		
13.3%	1192	$ 1,709

*Quit rate estimates are based on 30-day tobacco use plus e-cigarette abstinence at 7-month follow-up among participants who completed at least 1 coaching call

Based on follow up data from the current fiscal year, between 1,192 and 2,900 QuitlineNC participants quit using tobacco for at least 30 days in FY 2024. We estimate that between 23,150 and 54,847 NC tobacco users who utilized QuitlineNC coaching have quit using tobacco since the Quitline launched in 2005, resulting in an estimated $200.7 - $537.8 million in net medical cost savings (cost of healthcare savings minus costs of services). Savings estimates apply quit rates reported for each year (e.g., using tobacco plus e-cigarette quit rates) to the total number of unique QuitlineNC participants and assumes a $11,000 medical cost savings per tobacco user who quits.[25]

IV. Conclusions

QuitlineNC provides a cost-effective and necessary service to participants in every county in North Carolina and continues to successfully reach people who use tobacco from several populations that have higher rates of tobacco use and related health disease, including participants with Medicaid, Medicare, no health insurance, and/or mental health conditions. Since QuitlineNC launched in 2005, between 23,150 and 54,847 NC tobacco users who utilized QuitlineNC coaching have quit using tobacco.

The UNC Tobacco Prevention and Evaluation Program (TPEP) has provided independent evaluation of QuitlineNC since 2005. Findings are based on analysis of QuitlineNC intake and utilization data collected by RVO Health and data from a 7-month follow-up survey of NC tobacco users who utilized QuitlineNC coaching, which was administered and collected by UNC TPEP.

In FY 2024, 10,632 North Carolinians registered for QuitlineNC services, which corresponds to a promotional reach of 0.86%. The 10,632 North Carolinians registered is similar to the number of registrations in FY 2023 (10,701) and an 8% increase from FY 2022 (9,891), For treatment reach, any completed coaching session from any modality (call, text, web) is considered treatment. Of the participants who registered in FY 2024, 8,945 received at least one coaching session from any modality, a treatment reach of 0.72%. The treatment reach does not meet the guidelines set by the Centers for Disease Control and Prevention[14] or the North American Quitline Consortium[13] (8% and 6% respectively). Achieving either goal requires funding for Quitline services and promotion at significantly higher levels than those currently available to QuitlineNC.

People who registered for QuitlineNC were similar in terms of demographics to previous years, continuing to be primarily people aged 35-64, and people who smoke cigarettes only with a substantial minority using other tobacco products either alone or in combination with cigarettes. More than half of participants who smoke cigarettes were using more than 20 cigarettes per day at registration, and nearly three quarters were using tobacco within 30 minutes of waking up, both are indicators of high nicotine dependence. QuitlineNC is successfully reaching participants from populations that experience disparities in tobacco use and tobacco-related diseases and/or have more difficulty quitting.

FY 2024 was the first full evaluation period since QuitlineNC transitioned from providing primarily call based cessation to a new coaching platform which provides cessation coaching across multiple modalities (phone, text, web, one on one and in groups) in the standard program. Despite the platform change, participants continue to primarily utilize phone-based coaching. Most QuitlineNC participants complete at least one coaching session, but few complete five or more coaching sessions (the number of sessions offered in the standard program). Utilization of free nicotine replacement therapy continues to be high, 86.2% of eligible participants received NRT.

People who have mental health conditions continue to make up a substantial portion of QuitlineNC participants. More than half of all participants reported a mental health condition at registration, and 32% of participants enrolled in the Behavioral Health Protocol, which provides additional support to people with mental health conditions.

Ongoing federal and state promotion, as well as referrals from healthcare providers and insurers is continuing to sustain participation numbers. Sustained and increased Quitline promotion may help grow participant volume in the future, in addition to maintaining outreach to health care providers. Ongoing efforts to nurture existing partnerships and develop new ones may also help grow and sustain

QuitlineNC participant volume. State policies that require Medicaid Managed Care Organizations to participate in QuitlineNC are an important partnership in sustaining participation in QuitlineNC and financial coverage for services.

QuitlineNC participants in FY 2024 achieved a 30-day conventional tobacco quit rate between 15.7% (intent-to-treat) and 38.3% (responders). Participants achieved a 30-day conventional tobacco plus e-cigarette quit rate between 13.3% (intent-to-treat) and 32.4% (responders). Participants who were sent NRT or reported using all of the NRT that they were sent had higher quit rates, as did participants who completed five or more coaching sessions.

Although Quitline services are evidence based and cost-effective, funding for the service does not meet spending goals set by the North American Quitline Association.

QuitlineNC provides valuable and evidence-based support to people who use tobacco and want to quit. QuitlineNC can provide an important mechanism for meeting the HealthyNC goal of decreasing tobacco use among adults to 15% by 2030.[1] However, increased funding for the Quitline and the ability to allocate funding across services, promotion, and emerging needs as the tobacco landscape changes are necessary to ensure that the Quitline is reaching and providing service to the people of North Carolina.

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