



Evidence for Quitline Practices – 2014 Update

Quitlines make decisions about which practices to include in the services they provide on a regular basis. Yet it is not always clear what level of scientific evidence exists for each practice provided. The original version of this document produced in 2011 attempted to fill that gap. This update (April 2014) includes evidence published between 2009 and March 2014 relevant to 28 quitline practices included in the Knowledge Integration in Quitlines – Networks that Improve Cessation (KIQNIC) study (see page 2 for a list of practices, and see <http://www.naquitline.org/?page=kiqnic> for more information about the study).

In order to classify the various practices that quitlines implement, each practice has been given a rating. Ratings were assigned to each practice for both efficacy and reach. *Efficacy* refers to whether or not a practice increases quit rates. *Reach* refers to whether or not a practice leads to increased utilization of the quitline service.

Practices that are effective, as indicated by consistent findings by one or more meta-analyses, were given a rating of 'A'. Practices with consistent findings by multiple observational studies, mixed or weak findings by multiple rigorous/randomized studies or meta-analyses, or findings that were strong for in-person counseling but weaker for quitline counseling, were given a rating of 'B'. Practices that have been recommended by a reputable organization such as the CDC but have no high-quality peer-reviewed journal articles documenting their effectiveness were given a rating of 'C'. Finally, practices that were not supported by any scientific evidence or recommendations from reputable organizations were given a rating of 'D'. We consider A- and B-level practices "evidence-based" and C and D-level practices "emerging" or "future strategies." None of the practices included here, however, had evidence that they reduce efficacy or reach.

A list of search terms was identified and modified as needed to locate peer-reviewed publications for each of the 28 practices (see Appendix A). Google Scholar was used to conduct the search. In addition, the reference lists for the 2008 Public Health Service Guideline for Treating Tobacco Dependence (Fiore 2008), the 2013 Cochrane Review on quitlines (Stead et al. 2013), and the CDC's 2014 report "Best Practices for Comprehensive Tobacco Control Programs" (CDC 2014) were mined to identify additional citations relevant to the available evidence for each of the 28 practices.

Below are the ratings for 28 quitline practices along with the source of evidence when evidence exists.

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28. Provide free (or discounted) non-NRT cessation medication (e.g. bupropion/Wellbutrin/Zyban, or varenicline/Champix/Chantix) to callers ONLY IF they register for telephone counseling	21

**Evidence ratings that changed from the 2009 version are indicated with an asterisk.*

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Table 1. Level of Evidence for Increasing Efficacy (Quit Rates)

This table shows both the current (2014) level of evidence, as well as the 2011 level to provide a point of reference for any changes that occurred. The page number of this document where citations are located is also indicated.

LEGEND level of evidence for each practice:

A – Evidence to support this practice based on consistent findings of one or more meta-analyses

B – Some scientific evidence to support this practice (multiple observational studies, mixed or weak findings by rigorous studies or meta-analyses)

C – Recommended practice with limited evidence (emerging or future strategies)

D – No evidence currently to support this practice (emerging or future strategies)

2014	2011	Quitline Practices	Citations on page #
A	A	Provide free or discounted NRT WITHOUT counseling	7
A	A	Proactive counseling	5
A	A	Provide free or discounted NRT ONLY when registered for counseling	8
A	A	Self-help materials to users regardless of reason for calling or services selected	11
A	A	Self-help materials to users who receive counseling	12
A	B	Text messaging	15
A	B	Multiple call protocol	6
A	D	Fax referral	17
A	Not included	Direct referrals from electronic health records	20
A	Not included	Free or discounted prescription medications WITHOUT requiring registration for counseling	21
B	B	Mass media targeting mainstream population	9
B	B	2As or 3As and refer	19
B	B	Mass media targeting specific populations	10
B	B	Obtain Medicaid/insurance reimbursement	14

2014	2011	Quitline Practices	Citations on page #
B	B	Integrate phone/Web	16
B	B	Self-help materials to proxy callers	11
B	B	Reactive counseling	6
B	Not included	Free or discounted prescription medications ONLY when registered for counseling	21
C	C	Serve uninsured callers	13
C	C	Re-contact relapsed smokers	18
D	C	Refer callers with insurance to health plans	14
C	C	Interactive Voice Response (IVR)	18
C	C	Provide counseling immediately	12
C	C	Evaluate quitline effectiveness	13
D	D	All Masters-level counselors	12
D	D	Integrate phone/face-to-face	15
D	Not included	E-registration, web-referrals, click-to-call	20
D	Not included	Train counselors on co-morbid conditions	20

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Table 2. Level of Evidence for Increasing Reach

This table shows both the current (2014) level of evidence, as well as the 2011 level to provide a point of reference for any changes that occurred. The page number of this document where citations are located is also indicated.

LEGEND level of evidence for each practice:

A – Evidence to support this practice based on consistent findings of one or more meta-analyses

B – Some scientific evidence to support this practice (multiple observational studies, mixed or weak findings by rigorous studies or meta-analyses)

C – Recommended practice with limited evidence (emerging or future strategies)

D – No evidence currently to support this practice (emerging or future strategies)

2014	2011	Quitline Practices	Citations on page #
A	B	Provide free or discounted NRT without counseling	7
A	B	Mass media targeting mainstream population	9
A	Not included	Free or discounted prescription medications WITHOUT requiring registration for counseling	21
B	B	Fax referral	17
B	B	Provide NRT only when registered for counseling	8
B	B	Proactive counseling	5
B	B	2As or 3As and refer	19
B	B	Mass media targeting specific populations	10
B	B	Serve uninsured callers	13
B	B	Re-contact relapsed smokers	18
B	Not included	Direct referrals from electronic health records	20
B	Not included	Free or discounted prescription medications ONLY if registered for counseling	21
C	D	Text messaging	15
C	D	Refer callers with insurance to health plans	14

2014	2011	Quitline Practices	Citations on page #
C	D	Obtain Medicaid/insurance reimbursement	14
C	D	Integrate phone/Web	16
D	D	Multiple call protocol	6
D	D	Self-help materials to users regardless of reason for calling or services selected	11
D	D	Self-help materials to users who receive counseling	12
D	D	Self-help materials to proxy callers	11
D	D	Reactive counseling	6
D	D	Interactive Voice Response (IVR)	18
D	D	Provide counseling immediately	12
D	D	Evaluate quitline effectiveness	13
D	D	All Masters-level counselors	12
D	D	Integrate phone/face-to-face	15
D	Not included	E-registration, web-referrals, click-to-call	20
D	Not included	Train counselors on co-morbid conditions	20

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LEGEND

- plain font = single study,
- **bold font** = meta-analysis,
- underline = review of empirical studies without meta-analysis
- *italics* = recommended by trusted authority (e.g., CDC, etc.), but no specific evidence provided.

NOTE: Single studies are not listed in cases where there was a meta-analysis.

1. Proactive (outbound) counseling [counselor or coach places a call directly to the tobacco user]

Efficacy	Evidence	Reach	Evidence
A	<ul style="list-style-type: none"> • Lichtenstein et al. (1996): "A meta-analysis of proactive studies using a best-evidence synthesis confirmed a significant increase in cessation rates compared with control conditions [pooled odds ratios of 1.34 (1.19–1.51) and 1.20 (1.06–1.37) at short- and long-term follow-up, respectively]." • Pan (2006): "The present meta-analysis reviewed 22 studies published between January 1990 and December 2003 and found that there was a heterogeneous, significant adjunct effect of proactive telephone counseling for smoking cessation." • Stead et al. (2006): "Among smokers who contacted helplines, quit rates were higher for groups randomized to receive multiple sessions of proactive counselling (nine studies, >24,000 participants, risk ratio (RR) for cessation at longest follow up 1.37, 95% confidence interval (CI) 1.26 to 1.50)." • Stead, Lancaster, & Perera (2003): "telephone counseling compared to less intensive intervention increases quit rates (OR 1.56, 1.38 - 1.77)." • The 2008 PHS Guideline (Fiore et al., 2008) found that quitlines (telephone counseling in which at least some of the contacts are initiated by the quitline counselor) significantly increases abstinence rates compared to minimal or no counseling interventions (OR 1.6). • <i>Proactive telephone counseling combined with educational materials was recommended by the Guide to Community Preventive Services.</i> 	B	<ul style="list-style-type: none"> • Tzelepis et al. (2009): "More than half (52%) of eligible smokers contacted by telephone were recruited into cessation support...Active telephone recruitment successfully enrolled smokers who are currently under-represented among quitline users." "Of smokers allocated to proactive telephone counseling ($n = 769$), 90% accepted at least one and 65% three or more counseling calls. More than 90% of 4-month interview respondents found active telephone recruitment to cessation assistance acceptable. Of smokers allocated to proactive telephone counseling ($n = 769$), 90% accepted at least one and 65% three or more counseling calls." (randomized trial recruiting smokers from telephone directory in Australia, with services provided by New South Wales quitline) • Van Duesen et al. (2007): "41% of smokers [contacted via random digit dialing to participate in a survey] accepted the offer for, and subsequently received, New York State Smokers' Quitline services." (random-digit dialing survey by Roswell Park Cancer Institute, with offer at end of survey to transfer respondent to quitline or give quitline information for later contact) • Britt et al. (1994): "Eighty-six percent of smokers accepted at least one of three counselor calls; 66% accepted all three calls." (random selection of smokers who were enrolled in a large local HMO and assigned to treatment condition of self-help materials and counseling session performed by 1 of 2 PI-trained counselors (not quitline))

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2. Reactive (inbound) counseling [tobacco user calls into the quitline for every call]

Efficacy	Evidence	Reach	Evidence
B	<ul style="list-style-type: none"> CDC (2004) recommends. Ossip-Klein et al. (1991): “at 18 months, odds ratios for the hotline main effect for the [biochemical verification] sample, controlling for other variables, ranged from 1.43 to 1.47 (i.e., subjects in hotline counties were 43-47% more likely than non-hotline subjects to be abstinent). Corresponding odds ratios for the [significant-other validation] sample were 1.19-1.20.” (participants recruited via a variety of techniques, hotline condition received services from FREEDOM LINE, “a joint project of the University of Rochester Smoking Research Program and the American Lung Association”) <u>Lichtenstein et al. (1996): "Reactive approaches--help lines or crisis lines-- attract only a small percentage of eligible smokers but are sensitive to promotional campaigns. While difficult to evaluate, they appear to be efficacious and useful as a public intervention for large populations."</u> 	D	<ul style="list-style-type: none"> None

3. Multiple call protocol (two or more calls for the same quit attempt)

Efficacy	Evidence	Reach	Evidence
A*	<ul style="list-style-type: none"> Stead et al. (2013): “ Among smokers who contacted helplines, quit rates were higher for groups randomized to receive multiple sessions of proactive counselling (nine studies, > 24,000 participants, risk ratio (RR) for cessation at longest followup 1.37, 95% confidence interval (CI) 1.26 to 1.50)” <u>Three or more calls increase the chances of quitting compared to a minimal intervention such as providing standard self-help materials, or brief advice, or compared to pharmacotherapy alone.” (Stead et al., 2013, citing Ferguson 2012, Zhu 2012, and Sims 2013).</u> PHS guideline says more sessions is more effective for in-person counseling; 2-3 sessions, OR = 1.4; 4-8 sessions, OR = 1.9; > 8 sessions, OR = 2.3 when compared to 0-1 sessions (Fiore et al., 2008). Stead, Perera, & Lancaster (2007): "Eight studies (18 500 participants) comparing multiple call-backs to a single contact increased quitting in the intervention group (Mantel-Haenszel fixed effect odds ratio 1.41, 95% confidence interval 1.27 to 1.57)." Stead, Perera, & Lancaster (2006): more calls “may” produce higher quit rates; "There was mixed evidence about whether increasing the number of calls altered quit rates but most trials used more than two calls." 	D	<ul style="list-style-type: none"> None

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4. Provide free (or discounted) NRT without requiring telephone counseling

Efficacy	Evidence	Reach	Evidence
A	<ul style="list-style-type: none"> • Guide to Community Preventive Services (2012): Twelve studies examined the effectiveness of offering free evidence-based tobacco cessation medications (primarily nicotine replacement therapy) to callers to promote use of quitlines and enhance treatment options. Eleven of the 12 studies examined changes in self-reported tobacco cessation, typically based on follow-up periods of 6 months or less, and observed a median absolute increase in cessation rates of +9.8 percentage points compared with callers who were not offered nicotine replacement therapy (IQI: 7.4 to 15.7 percentage points). • Stead et al. (2008): "The RR of abstinence for any form of NRT relative to control was 1.58 (95% confidence interval [CI]: 1.50 to 1.66)...The effects were largely independent of the duration of therapy, the intensity of additional support provided or the setting in which the NRT was offered." • Etter & Stapleton (2006): looked at studies with follow-up periods of 2-8 years; "The odds ratio (OR) in favour of NRT at final follow-up was 1.99 (95% confidence interval (CI) 1.50 to 2.64)." • Mills et al. (2009): "We combined a total of 101 trials evaluating delivery of NRT versus inert controls at approximately 4 weeks post-target quit date (total n = 31,321). The pooled overall OR is OR 2.05 (95% Confidence Interval [CI], 1.89-2.23, P =< 0.0001)." • Wu et al. (2006): "We identified 70 trials of NRT versus control at 1 year, Odds Ratio [OR] 1.71, 95% Confidence Interval [CI], 1.55-1.88, P =< 0.0001." • Telephone counseling plus medication was more effective than medication alone (OR 1.3) (Fiore et al., 2008). • Stead et al. (2013): "pre-post comparisons [of quitlines offering free NRT] also suggest that quit rates are increased (e.g. An 2006a; Cummings 2006; Fellows 2007; Tinkelman 2007; Bush 2008; Campbell 2008; Miller 2009a; Davis 2013; Zawertailo 2013)." 	A*	<ul style="list-style-type: none"> • Guide to Community Preventive Services (2012): "Twelve studies examined the effectiveness of offering free evidence-based tobacco cessation medications (primarily nicotine replacement therapy) to callers to promote use of quitlines and enhance treatment options. Provision of medications was typically promoted through earned media activities such as press releases and announcements. Nine of the 12 studies evaluated changes in call volume and found a median relative increase of 396% (IQI: 134% to 1132%)." • Cummings et al. (2006): "In each time period and location where free NRT was offered, call volume to the Quitline increased dramatically." (enrolled people in quitline based on promotions advertising free NRT from quitline) • O'Connor et al. (2008): call volume increased 36% in the 15 days after postcards advertising the quitline and offering free nicotine patches were sent out, compared to the 15 days before. (sent postcards to eligible smokers advertising availability of free NRT from quitline) • Bauer et al. (2006): "The NRT voucher promotion increased median call volume 25-fold compared to pre-promotion levels." (press announcement to call quitline for free NRT)

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5. Provide free (or discounted) NRT to callers ONLY IF they register for telephone counseling

Efficacy	Evidence	Reach	Evidence
A	<ul style="list-style-type: none"> PHS Guideline (Fiore et al., 2008) says counseling plus medications is more effective than medications alone (OR 1.3). 	B	<ul style="list-style-type: none"> Miller (2009): "The offer of subsidized NRT recruited more than twice as many low-income smokers than the offer of the cessation service alone (intervention group n = 1000; comparison group n = 377)." (participants recruited to quitline via letter or newspaper flyer; comparison group of quitline callers without NRT) Campbell et al. (2008): offered 6-week NRT instead of the usual 4-week NRT. "The mean number of intake calls to the quitline increased from 397 (range 326–509) prior to the enhanced NRT benefit to 712 (range 592–1227) during the 6-week NRT benefit period." (compared the number of quitline callers during a time period in which 4 weeks of NRT was offered to the number of callers in a time period in which 6 weeks NRT was offered) An et al. (2006): "The number of callers increased from 155 (SD 75) to 679 (180) per month pre-NRT to post-NRT (difference 524, 95% confidence interval (CI) 323 to 725). Post-NRT, the proportion of callers enrolling in multi-session counseling (23.4% v 90.1%, difference 66.6%, 95% CI 60.8% to 71.6%) and using pharmacotherapy (46.8% v 86.8%, difference 40.0%, 95% CI 31.3% to 47.9%) increased." (compared quitline call volume, enrollment, etc. of 4 pre-NRT "cohorts" and 2 post-NRT "cohorts") Sheffer et al. (2010): offering 2 weeks of free NRT contributed to higher call-in rates. (media promotion of new NRT offering for quitline callers who also enrolled in multisession counseling calls) Tinkelman et al. (2007): "Call volume increased from 2351 intake calls per month or 78 calls per day before the availability of free NRT to 3606 intake calls per month or 188 intakes per day following the availability of free NRT (p<0.0001)." (mass media promotion of free 4- or 8-week NRT program for quitline callers who also enrolled in multisession counseling program) Fellows et al. (2007): "Compared to the pre-intervention programme, the free patch initiative doubled registered calls." (media kits sent out to promote free NRT with enrollment in quitline counseling; compared to time period before NRT available)

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6. Conduct mass media promotions for the mainstream population (paid television ads, radio ads, billboards, newspaper ads, etc.)

Efficacy	Evidence	Reach	Evidence
B	<ul style="list-style-type: none"> • <u>Guide to Community Preventive Services (2012): “Tobacco cessation rates among quitline callers: absolute increases in cessation rates of 3.0 and 5.3 percentage points compared with callers who were not exposed to media messages (2 studies)”</u> • <u>Stead et al. (2006): Mentioned in Cochrane, but in the context of quitline services not studying mass media campaigns themselves: “Quitlines may exert an impact beyond that which can be measured by quit rates amongst callers. They may have a symbolic role, emphasizing the importance of smoking cessation (Wakefield 2000), and may increase the number of smokers making a quit attempt each year because of awareness generated by the campaigns to promote them (Ossip-Klein 2003).”</u> • <u>Bala, Strzeszynski, & Cahill (2008): Mixed results of mass media campaigns for tobacco cessation, but not in the context of quitlines.</u> • Snyder et al. (2004): meta-analysis of media campaigns found small effect for smoking ($r = .05$). • <u>National Cancer Institute (2008): The NCI Monograph 19 reviewed the available literature from 1970 through 2007 and found extensive evidence that tobacco countermarketing campaigns curbed smoking initiation in youth and promoted smoking cessation in adults, particularly in the context of comprehensive tobacco control programs (cited in CDC 2014).</u> • <u>Durkin et al. (2012): Confirmed the efficacy of mass-media campaigns in reducing smoking among adults (cited in CDC 2014).</u> 	A*	<ul style="list-style-type: none"> • Guide to Community Preventive Services (2012): “Twenty-three studies evaluated the effectiveness of using mass-reach health communication interventions to increase calls to quitlines. Interventions used cessation-themed messages that included the quitline number, and disseminated them through multiple channels including television, radio, newspapers, and cigarette pack health warning labels. Eleven of the 23 studies evaluated changes in overall quitline call volume and observed a median relative increase of 132% (IQI: 39% to 379%). ... Increasing media campaign intensity was directly related to increases in quitline call volume.” • <u>Stead et al. (2013): “Promotion of quitlines by mass media antismoking campaigns helps to attract callers (e.g. Farrelly 2007; Mosbaek 2007; Miller 2009b; Farrelly 2011; CDC 2012, Guide to Community Preventive Services 2012)”.</u> • <u>Sheffer et al. (2010): “A successful statewide earned media campaign intensified the impact of these activities.” (media promotion of new NRT offering for quitline callers who also enrolled in multisession counseling calls)</u> • <u>Mosbaek et al. (2007): “Daytime television was seven times more cost effective than evening television and also more cost effective than radio.” (mass media promotions conducted by OR quitline)</u> • <u>Farrelly, Hussin, & Bauer (2007): “There was a positive and statistically significant relation between call volume and expenditures for television ($p < 0.01$) and radio ($p < 0.001$) advertisements and a marginally significant effect for expenditures on newspaper advertisements ($p < 0.065$). The largest effect was for television advertising. However, because of differences in advertising costs, for every \$1000 increase in television, radio and newspaper expenditures, call volume increased by 0.1%, 5.7% and 2.8%, respectively. ” (mass media promotions conducted by NY quitline)</u> • <u>Hurd et al. (2007): “Although there was large variability across states, there was an average of 317 calls pre-promotion, 726 calls during the promotion, and 397 calls post-promotion.” (examined impact of ABC’s World News Tonight promotion of 1-800-QUIT-NOW on call volume for U.S. quitlines)</u>

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

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7. Conduct mass media promotions for targeted populations (tailor the content or format of paid advertising to reach a specific group of tobacco users, e.g., non-English speakers, pregnant women, etc.)

Efficacy	Evidence for	Reach	Evidence for
<p>B</p>	<ul style="list-style-type: none"> • Solomon et al. (2009): “Although the condition by time interaction was not significant, the proportion of adolescents smoking in the past month was significantly lower in the experimental than comparison condition at 3-year follow-up when adjusted for baseline smoking status.” (3-year radio and television campaigns aimed at adolescent smoking cessation; surveyed adolescents in areas that had and had not received the campaign) • Burns & Levenson (2010): “QuitLine calls increased among Latinos during the campaign by 57.6% (1169 vs 1842 in 3-month periods).” (Spanish-language media campaign by CO quitline) • <i>While CDC Best Practices 2007 recommended targeted promotions in addition to media campaigns, CDC Best Practices 2014 suggests “ensuring that messages resonate with specific population subgroups does not require that unique materials be developed for each audience. <u>Evidence has confirmed that strong ads, such as those that graphically or emotionally portray the serious consequences of smoking, resonate well with a wide variety of audiences (National Cancer Institute 2008; Durkin, Brennan, and Wakefield 2012). Advertising concepts and advertisements can be tested among specific target audiences to ensure that they communicate persuasively, and media buying can be tailored, when feasible, to ensure appropriate reach of those audiences.”</u></i> 	<p>B</p>	<ul style="list-style-type: none"> • Stead et al (2013): “The use of targeted advertising may increase calls from specific minority or underserved groups (Cummings 1989; Pierce 1992; Cummings 1993; Owen 2000; Zhu 2000; Cummins 2007; Maher 2007).” • Burns and Levinson (2010): “A well-designed, statewide Spanish-language media campaign increased QuitLine reach and improved cessation outcomes among a young Latino population of low socioeconomic status. QuitLine-supported cessation can be increased among these smokers.” • Cummings et al. (1989): “Conducted an anti-smoking print and broadcast media campaign...designed to encourage female cigarette smokers (aged 18–34 yrs) with young children to call the National Cancer Institute’s Cancer Information Service for information on smoking cessation. Data from the first 28 wks of the 52-wk campaign showed that the number of calls for smoking cessation information was 10 times greater from the experimental markets.” (compared calls to CIS from markets that had and had not received media campaign focused on second-hand smoke and children in NY, PA, and DE) • Cotter et al. (2008): Target Audience Rating Points for quitline ads correlated with quitline call volume, $r = .88$. (examined impact of mass media campaigns promoting quitline in New South Wales, AU on number of calls to quitline) • Campion et al. (1994): “Two surveys were conducted among pregnant women throughout England before (n = 625) and after (n = 607) a mass media campaign on smoking and pregnancy targeted at women aged 15-24 years...During the campaign there was a 14% increase in the number of calls to a cessation helpline from pregnant women.” (surveyed pregnant women in England before and after mass media campaign) • Skinner et al. (1999): “Compared to their nontailored counterparts, tailored print communications have been consistently better remembered, read, and perceived as relevant and/or credible. There is also evidence that tailored print communications are more effective for influencing health behaviors. Six of the eight tailored/nontailored comparisons found more behavior change among tailored than nontailored recipients. . . . However, studies comparing tailored print communications with tailoring via other media such as telephone counseling have shown mixed results.” • Kreuter and Wray (2003): “Health communication programs and materials that succeed in making information relevant to their intended audience will be more effective than those that do not. Tailoring is a proven approach to enhancing message relevance, but not the only approach to do so, and under many circumstances may not be the preferred choice.”

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

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8. Provide self-help materials to proxy callers (proxy caller = someone calling on behalf of, or to help someone else)

Efficiency	Evidence	Reach	Evidence
B	<ul style="list-style-type: none"> Patten et al. (2009): "support persons" were given written materials and social cognitive theory-based telephone counseling sessions; no difference from control on smoking abstinence rates or quit attempts. (recruited participants via flyers and provided SCT-based intervention via telephone counseling by Mayo Tobacco Quitline) Stead et al. (2006): "Services can increase population quitting just by mailing self-help materials, even though the effect of this minimal intervention may not be large (Lancaster 2005b)." 	D	<ul style="list-style-type: none"> None

9. Provide self-help materials for tobacco users regardless of reason for calling or services selected

Efficiency	Evidence	Reach	Evidence
A	<ul style="list-style-type: none"> Naughton, Prevost, & Sutton (2008): "The primary meta-analysis pooled 12 trials comparing usual care (median quit rate 4.9%) with self-help (median quit rate 13.2%) and yielded a pooled odds ratio (OR) of 1.83 [95% confidence interval (CI) 1.23–2.73], indicating that self-help interventions on average nearly double the odds of quitting compared with standard care." Lancaster & Stead (2005): Benefit of self-help over no intervention ($RR = 1.2$) but not over receiving other types of written materials. PHS Guideline (Fiore et al., 2008) states that "the effect of self-help was weak and typically not significant across analyses conducted." $OR = 1.2$ ($p < .05$) compared to no intervention, $OR = 1.0$ for 1 type of self-help and 1.1 for 2 or more types of self-help (both $ps > .05$). 	D	<ul style="list-style-type: none"> None

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

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10. Provide self-help materials for tobacco users who receive telephone counseling

Efficacy	Evidence	Reach	Evidence
A	<ul style="list-style-type: none"> Naughton, Prevost, & Sutton (2008): "The primary meta-analysis pooled 12 trials comparing usual care (median quit rate 4.9%) with self-help (median quit rate 13.2%) and yielded a pooled odds ratio (OR) of 1.83 [95% confidence interval (CI) 1.23–2.73], indicating that self-help interventions on average nearly double the odds of quitting compared with standard care." Lancaster & Stead (2005): Benefit of self-help over no intervention ($RR = 1.2$) but not over receiving other types of written materials. PHS Guideline (Fiore et al., 2008) says that "the effect of self-help was weak and typically not significant across analyses conducted." $OR = 1.2$ ($p < .05$) compared to no intervention, $OR = 1.0$ for 1 type of self-help and 1.1 for 2 or more types of self-help (both $ps > .05$). 	D	<ul style="list-style-type: none"> None

11. Provide telephone counseling immediately to all callers who request it (either through real-time staff capacity, or on-call staff capacity)

Efficacy	Evidence	Reach	Evidence
C	<ul style="list-style-type: none"> CDC (2004) recommends 	D	<ul style="list-style-type: none"> None

12. Have a policy that all quitline counselors must have Masters-level training

Efficacy	Evidence	Reach	Evidence
D	<ul style="list-style-type: none"> CDC (2004) says licensed counselors unnecessary for quitline success. 	D	<ul style="list-style-type: none"> None

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

13. Conduct an evaluation of the effectiveness of the quitline (i.e., assess quit rates at least once in the past year)

Efficacy	Evidence	Reach	Evidence
C	<ul style="list-style-type: none"> Both CDC (2004) and NAQC (2009) would recommend this practice, but there is nothing linking conducting an evaluation with increased efficacy of the quitline. 	D	<ul style="list-style-type: none"> None

14. Serve callers without insurance coverage

Efficacy	Evidence	Reach	Evidence
C	<ul style="list-style-type: none"> CDC (2014): "Cessation services directly provided or funded by a comprehensive state tobacco control program are best focused on populations that lack access to these services through other channels, such as the uninsured and the underinsured." (CDC 2014, citing Holahan et al. 2012.) 	B	<ul style="list-style-type: none"> Burns and Levinson (2010): "A well-designed, statewide Spanish-language media campaign increased QuitLine reach and improved cessation outcomes among a young Latino population of low socioeconomic status. QuitLine-supported cessation can be increased among these smokers." Tworek et al. (2009): Maine's NRT service model for uninsured smokers effectively encouraged smokers to contact the HelpLine and use NRT, demonstrating valuable opportunity for quitlines to provide NRT access and increase demand among motivated smokers." Swartz et al. (2005): "Compared to smokers statewide, callers were more likely to be aged 45 to 64, female, or uninsured." (analysis of callers to ME quitline over 2-year period)

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

15. Obtain Medicaid or other insurance reimbursement for telephone counseling provided to callers

Efficacy	Evidence	Reach	Evidence
B	<ul style="list-style-type: none"> Joyce et al. (2008): "Unadjusted quit rates assuming missing data=smoking were 10.2 percent (9.0–11.5), 14.1 percent (11.7–16.5), 15.8 percent (14.4–17.2), and 19.3 percent (17.4–21.2) at 12 months for the Usual Care, Provider Counseling, Provider Counseling + Pharmacotherapy, and Quitline arms." (recruited Medicare beneficiaries in 7 states via media campaigns, community outreach, and direct mailings) 	C*	<ul style="list-style-type: none"> CDC (2014) suggests that to increase sustainability of quitline services, "programs can establish public-private partnerships, in which health plans or employers reimburse the state quitline for services provided to their members/ employees, or contract directly with a quitline vendor to provide these services." Colorado and Minnesota are identified as examples of this type of partnership (Partnership for Prevention 2011; Schillo et al., 2007). CDC also suggests working with state Medicaid programs to secure the 50% federal match for quitline counseling provided to Medicaid enrollees. If a quitline is receiving reimbursement, reach may indirectly increase if this increases the promotions budget. (comment from NAQC's KIQNIC workgroup)

16. Refer callers with insurance to health plans that provide telephone counseling (either provide a direct/warm transfer to the health plan or provide the health plan number to the tobacco user)

Efficacy	Evidence	Reach	Evidence
D*	<p>CDC (2007) indicates this is an opportunity to do creative cost-sharing. States that do this are pointed to as examples in the field. [Note: the 2011 version of this document rated this practice "C" because the CDC recommended it. However, the CDC did not use increasing efficacy of the quitline as a rationale for its recommendation. Therefore we are re-rating this practice "D."]</p>	C*	<ul style="list-style-type: none"> CDC (2014) cites two case studies (Schillo et al. 2007; Partnership for Prevention 2011) as examples of partnering with health plans to help reduce the amount of money spent serving tobacco users with insurance, thereby expanding capacity to serve uninsured or underinsured tobacco users.

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

17. Use text messaging to provide tailored support in conjunction with or instead of telephone counseling

Efficacy	Evidence	Reach	Evidence
A*	<ul style="list-style-type: none"> Whittaker et al. (2012): While the 2009 version of this Cochrane review showed a significant increase in short-term self-reported quitting (RR 2.18, 95% CI 1.80 to 2.65) but mixed long-term results, the 2012 update found “mobile phone interventions were shown to increase the long term quit rates compared with control programmes (RR 1.71, 95% CI 1.47 to 1.99, over 9000 participants), using a definition of abstinence of no smoking at six months since quit day but allowing up to three lapses or up to five cigarettes.” The meta-analysis included both text and video mobile-phone interventions, although methodologies were similar enough both types were included. 	C*	<ul style="list-style-type: none"> CDC (2014) suggests “Text messaging, Web, and social media interventions could potentially extend the reach and impact of quitlines, particularly among younger individuals (Fiore 2008)”

18. Integrate phone counseling with face-to-face cessation services through referrals or combinations of phone and those services (e.g., provide information about the face-to-face services and a means of contacting them to tobacco users, or provide an integrated phone and face-to-face counseling program)

Efficacy	Evidence	Reach	Evidence
D	<ul style="list-style-type: none"> None 	D	<ul style="list-style-type: none"> None

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

19. Integrate phone counseling with web-based, internet-based or eHealth programs through referrals or combinations of phone and those services (e.g., provide information about the web-based, internet-based or eHealth programs and how to access them to tobacco users, or provide an integrated phone and web/internet/eHealth counseling program)

Efficacy	Evidence	Reach	Evidence
B	<ul style="list-style-type: none"> Zbikowski et al. (2008): "Web utilization was significantly associated with increased call completion and tobacco abstinence rates at the 6-month follow-up evaluation." (tracked use rates of participants enrolled in quitlines—all participants had access, no random assignment) Chen & Yeh (2006): "The results showed that the strategy of combining the smoking cessation program and an IAI program was highly effective in terms of effects upon the youth's attitude towards smoking, smoking behavior, and self-efficacy." (recruited youths from school into program; location not specified, but authors are both in Taiwan) Japuntich et al. (2006): "We found that access to CHES SCRIP was not significantly related to abstinence at the end of the treatment period (OR = 1.13, 95% CI 0.66-2.62) or at 6 months postquit (OR = 1.48, 95% CI 0.66-2.62). However, the number of times participants used CHES SCRIP per week was related to abstinence at both end of treatment (OR = 1.79, 95% CI 1.25-2.56) and at the 6-month follow-up (OR = 1.59, 95% CI 1.06-2.38)." (all participants received counseling and bupropion; participants randomly assigned to have access to CHES and instructed to log in every day, with reminders or not) 	C*	<ul style="list-style-type: none"> CDC (2014) recommends: "Longer-term efforts [for quitlines] include: ... integrating telephone cessation services with text messaging interventions and cessation services provided through other technologies, such as the Web and social media."

*Evidence ratings that changed from the 2009 version are indicated with an asterisk.

20. Fax-to-quit or fax-referral program (health care provider or others refer tobacco users to the quitline via a faxed form, and the quitline makes an outbound call to the tobacco user)

Efficacy	Evidence	Reach	Evidence
A*	<ul style="list-style-type: none"> • The Guide to Community Preventive Services (2012) conducted a systematic review of quitline interventions, and recommended referral interventions for health care systems and providers. Of the 14 studies that examined effectiveness of referral systems, eight addressed tobacco cessation rates for referred callers. Overall, they found a median absolute increase of 2.4 percentage points compared with non-referred callers (IQI: 1.6 to 12.0 percentage points) • Kobinsky (2010): Respondents who had been referred to the quitline by fax reported a statistically significantly higher 30-day abstinence rate (46.8%) compared to respondents who had reached the quitline through some other mechanism (32.7%). 	B	<ul style="list-style-type: none"> • Warner et al. (2012): Between April 2002 and March 2011, approximately 3,000 unique providers referred patients and 32,967 tobacco users received referrals. Referrals substantially increased during February 2009 through March 2011, comprising 80% of total client volume. Factors responsible include partnerships with stakeholders, periodic program promotions, hospital activities in response to Joint Commission tobacco use measures, service evolutions, provision of nicotine replacement therapy for referred patients, and electronic referral options. QuitWorks' history demonstrates that tobacco cessation referral programs can be successfully sustained over time and reach substantial numbers of tobacco users. • <u>Mentioned in PHS Guideline (Fiore et al., 2008) as a strategy to promote provider intervention, but not done as part of a meta-analysis.</u> • Willet et al. (2009): "This study found low enrollment rates from faxed referrals; substantial efforts led to relatively few patients receiving quitline services. However, faxed referrals may reach populations who traditionally have less access to cessation aids." (compared quitline enrollees at Ohio quitline who had and had not been enrolled through fax referral) • Redmond et al. (2010): "Since Fax to Quit's inception in 2003...More than 10,000 patients have been referred to WTQL services through Fax to Quit." (method not specified, but appear to have examined records from the WI quitline) • Perry et al. (2005): "Starting in 2004, approximately 30% of the 12,000 callers each year to the Wisconsin Tobacco Quit Line are enrolled through the Fax to Quit program" and referrals increased almost every quarter over the first 2 years of the program. (reports on first two years (2003-2004) of the WI quitline's Fax to Quit program)

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21. Re-contact relapsed smokers for re-enrollment in quitline services

Efficacy	Evidence	Reach	Evidence
C	<ul style="list-style-type: none"> CDC included it in its telephone quitlines resource document. (2004). CDC (2014) indicates that “Longer term efforts include ... re-engaging previous quitline callers who agree to be re-contacted in quit attempts.” 	B	<ul style="list-style-type: none"> Carlini et al. (2008): "Analysis of the 252 days prior to the intervention resulted in a spontaneous re-enrollment rate of 0.54% per 30 days. Recruitment using mailers did not significantly change this rate; the addition of telephone calls increased re-enrollment to 6.93% per 30 days." (randomly assigned previous quitline (NM and OK) enrollees to one of 4 conditions: control (no invitation), general mail invitation, ethnic-specific mail invitation, or ethnic-specific mail invitation with telephone follow-up)

22. Supplement quitline services with Interactive Voice Response (IVR) services (e.g., automated check-in IVR calls for relapse prevention)

Efficacy	Evidence	Reach	Evidence
C	<ul style="list-style-type: none"> CDC included it in its telephone quitlines resource document. (2004). Reid et al. (2007): Ninety-nine patients hospitalized for coronary heart disease were given counseling while hospitalized and offered NRT. Post-discharge they were randomized to receive automated telephone calls at 3, 14 and 30 days after discharge inquiring about their smoking status and confidence in remaining smoke-free. When deemed necessary, they were offered additional counseling. “After adjustment for education, age, reason for hospitalization, length of hospitalization, and quit attempts in the past year, the odds of quitting in the IVR group compared to the usual care group were 2.34 (95% CI: 0.92–5.92; P =.07).” 	D	<ul style="list-style-type: none"> None

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23. Train provider groups on 2A's or 3A's and refer (with or without a fax referral program)

Efficacy	Evidence	Reach	Evidence
<p>B</p>	<ul style="list-style-type: none"> Gordon et al. (2007): “Smokers in the two intervention conditions [3As plus quitline counseling or 5As without quitline counseling] quit at a higher rate than those in usual care; $x^2(1, n = 1381) = 3.10, p < 0.05$.” (randomized dental practices in MS to control condition, 3As intervention, or 5As intervention) Puschel et al. (2008): “At study end, 15.2% of women reported quitting smoking at least for 1 month in the intervention clinic versus 7.8% in one of the control clinics ($p < 0.05$) and 14.6% in the second control clinic ($p = NS$).” (2 control clinics and 1 intervention (administered 5A's) clinic in Chile) 	<p>B</p>	<ul style="list-style-type: none"> CDC (2004) and PHS (Fiore et al., 2008) recommend this. CDC (2014): Academic detailing “involves providing technical assistance to health care organizations and providers in implementing health systems changes that institutionalize tobacco use screening and intervention, including referrals to the state quitline.... Studies of academic detailing initiatives have found that they have the potential to increase ... fax referrals to quitlines” (Warner et al 2012; Schauer Thompson and Zbikowski 2012; Redmond et al. 2010; Sheffer et al. 2012; Bernstein et al. 2009). Katz et al. (2012): Training of emergency department (ED) nurses and physicians included face-to-face training and an online tutorial, use of a charting/reminder tool, fax referral of motivated smokers to the state tobacco quitline for proactive telephone counseling, and group feedback to ED staff.” Training resulted in an increase of quitline referrals (7% post-intervention vs. 1% pre-intervention, adjusted OR = 7.1, 95% CI = 2.3 to 21). Carpenter et al. (2012): A case-based online CME/CE program, Refer2Quit (R2Q), was developed, and included quitline education and intervention and referral skills training tailored to provider type and work setting. Health care sites that participated in the study increased fax referral rates (odds ratio [OR] 2.86, confidence interval [CI] 1.52–6.00) as well as rates of referrals that converted to actual quitline registrations (OR 2.73, CI 1.0–7.4). Redmond et al. (2010): “Since 2001, 23,000 tobacco users (approximately 20% of the total) contacted the WTQL as a result of a clinician referral [based on training in 5A model].” (method not specified, but appear to have examined records from the WI quitline) Perry et al. (2005): “Starting in 2004, approximately 30% of the 12,000 callers each year to the Wisconsin Tobacco Quit Line are enrolled through the Fax to Quit program [which employs the 5A model].” (reports on first two years (2003-2004) of the WI quitline’s Fax to Quit program)

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24. Direct referrals to the quitline from electronic medical records (e-referral or fax referral initiated from a health care system's electronic medical record system)

Efficacy	Evidence	Reach	Evidence
A	<ul style="list-style-type: none"> The Guide to Community Preventive Services (2012) conducted a systematic review of quitline interventions, and recommended referral interventions for health care systems and providers. Of the 14 studies that examined effectiveness of referral systems, eight addressed tobacco cessation rates for referred callers. Overall, they found a median absolute increase of 2.4 percentage points compared with non-referred callers (IQI: 1.6 to 12.0 percentage points) Kobinsky (2010): Respondents who had been referred to the quitline by fax reported a statistically significantly higher 30-day abstinence rate (46.8%) compared to respondents who had reached the quitline through some other mechanism (32.7%). 	B	<ul style="list-style-type: none"> Ray et al. (2014): Dental practices provided either paper referrals (information prescriptions) or e-referrals to web-based cessation services. Although total referrals from intervention practices was lower than control, subsequent proportions of registrations among smokers referred to web-based services were nearly fourfold higher (adjusted mean percentages: 29.5% vs 7.6%, $p < 0.01$) in intervention compared with control practices. Vidrine et al. (2013): 10 clinics were pair-matched to provide smoking patients with an informational card about the quitline (control) or to provide an e-referral to the quitline (intervention). Among intervention clinics, 7.8% of all identified smokers enrolled in treatment versus 0.6% in control clinics ($t(4)=9.19$, $p=0.0008$, $OR=11.60$ (95% CI 5.53-24.32), a 13-fold increase in the proportion of smokers enrolling in treatment.

25. E-registration, web-referrals, 'click to call' - someone sees something online about the quitline, and can either sign up online for a proactive call at a later time, or click a button to request an outbound call from the quitline immediately

Efficacy	Evidence	Reach	Evidence
D	<ul style="list-style-type: none"> None 	D	<ul style="list-style-type: none"> None

26. Specific counselor training for working with tobacco users with co-morbid conditions (e.g. mental health issues, chronic conditions)

Efficacy	Evidence	Reach	Evidence
D	<ul style="list-style-type: none"> None 	D	<ul style="list-style-type: none"> None

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27. Provide free (or discounted) non-NRT cessation medication (e.g. bupropion/Wellbutrin/Zyban, or varenicline/Champix/Chantix) to callers WITHOUT requiring them to register for telephone counseling

Efficacy	Evidence	Reach	Evidence
A	<ul style="list-style-type: none"> • Fiore et al. (2008): Varenicline and bupropion increased cessation over placebo at 6 months post-quit (varenicline 2 mg/day OR=3.1, Confidence Interval =2.5-3.8, 5 trials) (bupropion OR=2.0, CI=1.8-2.2, 26 trials). Also, medication plus counseling increased effectiveness over counseling alone (OR=1.7, CI=1.3-2.1, 9 trials). • Cahill et al. (2012): varenicline at standard dosage was found to increase the chance of successful long-term smoking cessation between two- and threefold compared to pharmacologically unassisted quit attempts [RR = 2.27, 95% confidence interval (CI) = 2.02–2.55, 14 trials] • Cahill et al. (2013): both bupropion and varenicline are effective cessation medications. 	A	<ul style="list-style-type: none"> • Evidence is strong that providing free cessation medications (NRT) increases reach (see practice 4 above). While no studies to date have looked specifically at whether providing free or discounted prescription medications increases reach, we can infer that it would have a similar impact on reach as providing free or discounted NRT.

28. Provide free (or discounted) non-NRT cessation medication (e.g. bupropion/Wellbutrin/Zyban, or varenicline/Champix/Chantix) to callers ONLY IF they register for telephone counseling

Efficacy	Evidence	Reach	Evidence
D	<ul style="list-style-type: none"> • None. While the 2008 PHS Clinical Practice Guideline (Fiore 2008) and 2012 and 2013 Cochrane reviews (Cahill 2012; Cahill 2013) indicate prescription medications are effective at helping people quit using tobacco, no studies to date specifically test the provision of prescription medication in the context of requiring quitline counseling. 	B	<ul style="list-style-type: none"> • Evidence is strong that providing free cessation medications (NRT) increases reach (see practice 5 above). While no studies to date have looked specifically at whether providing free or discounted prescription medications increases reach, we can infer that it would have the same impact on reach as providing free or discounted NRT.

**Evidence ratings that changed from the 2009 version are indicated with an asterisk.*

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AUTHORS

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Appendix A: Search Terms

((Quitline OR telephone counseling OR smoking cessation OR cessation)

AND

(proactive counseling OR reactive counseling OR inbound counseling OR multiple calls OR free NRT OR NRT OR nicotine replacement therapy OR mass media OR media OR self help OR self-help materials OR promotions OR proxy callers OR evaluation OR internet OR 5A OR medicare OR text messaging OR support OR interactive voice response))

OR discounted NRT

OR targeted health communication

OR (health communication AND behavior change)

OR anti-smoking campaigns

OR tobacco use interventions

OR (pharmacotherapies AND smoking)

AND (reach OR (efficacy OR quit rate OR abstinence))

((Quitline OR telephone counseling OR smoking cessation OR cessation)

AND (direct referral OR electronic medical record OR e-referral OR fax referral))

OR web-referral

OR click to call

OR (counselor OR coach)

AND (training OR teaching OR technical assistance OR materials)

AND (co-morbid condition OR mental health OR chronic condition OR behavioral health OR mental illness OR addiction)

OR ((free OR discounted)

AND (prescription medication OR bupropion OR varenicline OR Zyban OR Chantix OR champix))

AND (reach OR (efficacy OR quit rate OR abstinence))

**Evidence ratings that changed from the 2009 version are indicated with an asterisk.*

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