An Educational Intervention to Increase Intention to Quit Tobacco Use

Julie L. Cargille

Rutgers School of Nursing

DNP Chair: Irina Benenson, DNP, FNP-C, CEN
DNP Team Member: Tracy Vitale, DNP, RNC-OB, C-EFM, NE-BC, C-EFM
Date of Submission: March 31, 2020
Table of Contents

Cover Page 1
Table of Contents 2
Introduction 4
Background and Significance 5
  Prevalence of Tobacco Smoking 5
  Health Impact of Smoking 7
  Benefits of Smoking Cessation 9
  Difficulties of Quitting Smoking 9
  Smoking-Cessation Strategies 10
Needs Assessment 13
Problem Statement 15
Clinical Question 15
Aims and Objectives 15
Review of Literature 16
  Quitline Usage 17
  Patient Smoking Outcomes 18
  Quitline-Use Intensity 19
  Self-Refer or Connect to Services 20
  Intention to Quit Smoking and Motivation to Quit Smoking 21
  Conclusions 21
Theoretical Framework 21
Methodology 23
  Setting 23
  Study Population 23
  Subject Recruitment 24
  Consent Procedure 25
  Risks/Harms/Ethics 25
  Subject Costs and Compensation 27
An Educational Intervention to Increase Intention to Quit Tobacco Use

**Introduction**

According to the Centers for Disease Control and Prevention (CDC; 2019), the use of tobacco is the largest preventable cause of death in the United States (U.S.). Tobacco use causes early death, disability, and unnecessary healthcare costs. *Treating Tobacco Use and Dependence: 2008 Update* was published by the U.S. Department of Health and Senior Services (USDHSS) over a decade ago and provides evidence-based guidelines for practitioners and healthcare-delivery systems (Fiore et al., 2008). It gives providers clear guidance for treating tobacco use. The guidelines present a five-step approach to providing tobacco-cessation advice in the form of the “5As”: *Ask, Assess, Advice, Assist, and Arrange for follow-up* (Fiore et al., 2008). Despite an increase in funding for tobacco-cessation counseling and medications, providers have been slow to adopt the guidelines. Increasing compliance with the guidelines will achieve both financial and health benefits. Some providers have difficulty completing the 5As because of the type of offices they have. For offices who have difficulty completing the 5As, a shortened version of the 5As can be used. This shortened version of the 5As includes a referral to a quitline. Smoking-cessation quitlines are provided by the federal government, state governments and some insurance companies. The services quitlines offer varies but most provide, at minimum, telephone counseling for smoking cessation. Quitlines are under-used but provide a meaningful service to those patients trying to quit. This project will evaluate a brief tobacco intervention and the participants’ intentions-to-quit smoking, attempts at quitting, setting a quit date, and completing a referral to a quitline.
Background and Significance

Prevalence of Tobacco Smoking

Cigarette smoking is the leading preventable cause of morbidity and mortality in the U.S. (Jamal et al., 2016; Jamal et al., 2018). In 2016 the prevalence of smoking in the U.S. was 15.5%, which equals 37.8 million people (Jamal et al., 2018). Of these, 76.1% smoke every day (CDC, 2019). Prevalence decreased 4.4% from 2005 to 2015 (Jamal et al., 2018). However, there was no significant decrease from 2015 to 2016 (Jamal et al., 2018). The tobacco-use prevalence rate remains higher than the Healthy People 2020 goal of 12% (USDHHS, 2019). In addition, there has been sharp increase in electronic cigarette and tobacco usage among teenagers (Miech, Johnston, O’Malley, Bachman, & Patrick, 2019).

There are various reasons smoking prevalence has declined. The Surgeon General of the U.S. first cautioned against smoking in 1964 (USDHHS, 2014). There have been many measures instituted since then that have helped to decrease smoking prevalence. No-smoking laws, warning labels on cigarettes, restrictions on the age to purchase cigarettes, cigarette taxes, and education about the harms of smoking and second-hand smoke have all decreased smoking prevalence (USDHHS, 2014). Recently, in 2016, the Tips from Former Smokers marketing campaign from the CDC led to an increase in quitline use and resulted in approximately 1.6 million people attempting to quit and 100,000 people quitting permanently (Zhang et al., 2016).

Prevalence of smoking varies by age, region, sex, race and socioeconomic status. The highest prevalence of smoking is among American Indian and Alaska Natives at 31.8% (CDC, 2019). This high rate among Native Americans may be due to the traditional role of tobacco in their culture (CDC, 2019). But is also likely influenced by the lower price of cigarettes due to a lack of taxation of cigarettes on tribal lands (CDC, 2019). The next largest prevalence is among
those who consider themselves multiple races at 25.2% (CDC, 2019). Blacks and whites have similar prevalence rates at 16.5 and 16.6%, respectively (CDC, 2019). Hispanics and Asians have lower prevalence rates at 10.7 and 9.0%, respectively (CDC, 2019).

Age, sex, and sexual orientation are factors in smoking prevalence. Men and women tend to smoke at different rates with a prevalence of 17.5 and 13.5% (CDC, 2019). Currently, smoking prevalence is highest among 25-44-year-olds (17.6%) and 45-64-year-olds (18.0%) (CDC, 2019). Those who are 18-24 years-old have a prevalence of 13.1%. While older adults (65 and older) have the lowest prevalence at 8.8% (CDC, 2019). Prevalence among teenagers of any tobacco product (electronic or other) increased 5.2 percentage points from 23.7% to 28.9% in 2018 (Meich et al., 2019). Lesbian, gay, bisexual, transsexual and queer (LGBTQ) individuals have a smoking prevalence of 20.5% as compared to 15.3% of heterosexual/straight individuals (CDC, 2019).

Socioeconomic status has a large effect on prevalence of smoking. Generally, the more education a person has the less risk of smoking (CDC, 2019). Those persons with a General Equivalency Diploma (GED) have the highest prevalence rate of 40.6% (CDC, 2019). However, persons with less than a high school degree but that do not have a GED have a prevalence of 24.1%, while high school graduates have a prevalence of 19.7% (CDC, 2019). People with undergraduate and graduate degrees have the lowest rates of smoking at 7.7 and 4.5%, respectively (CDC, 2019). Being below the poverty level increase prevalence to 25.3% compared to those above the poverty level with a prevalence of 14.3% (CDC, 2019).

Prevalence rates vary by health status. People with Human Immunodeficiency Virus (HIV) have a high smoking prevalence rate of 42.4% (CDC, 2019). The prevalence rate of smoking for those with mental illness is 36% (CDC, 2019). Those with disabilities have a
smoking prevalence rate of 21.2%. Given the known detriments to fetal health, any smoking in pregnancy is concerning. The overall prevalence of any smoking during pregnancy was 10.7%. About half of women who were smoking prior to pregnancy quit smoking by the end of pregnancy (CDC, 2019). There is evidence that women cut back their smoking during pregnancy even when they don’t quit. A study from Lange, Probst, Rehm, and Popova (2018) found that the rate of women who smoked every day while pregnant in the Americas was lower than when not pregnant, about 5% and 13.5% respectively. Lange et al. (2018) included data from Canada were pregnancy smoking rates are higher than the U.S. and from Central and South America where the rates are lower than the U.S.

**Health Impact of Smoking**

Smoking increases risk for numerous diseases, associated illnesses, and death. Annually in the U.S., tobacco smoking results in the premature death of 480,000 people, with 41,000 people dying from second-hand smoke (Jamal et al., 2016). The all-cause mortality is three to five times greater in smokers than in nonsmokers, and recent data show that the relative risk for death is nearly identical for men and women who smoke (Thun et al., 2013). Smokers can lose more than 10 years of life expectancy compared with never-smokers (Thun et al., 2013).

Smoking is the leading preventable risk factor for cardiovascular disease. Cigarette smoking in early in life can cause abdominal aortic aneurysms and cigarette smokers are more likely to die of abdominal aortic aneurysms than non-smokers (USDHHS, 2014). The greatest risk factor for peripheral artery disease is smoking (USDHHS, 2014). Cigarette smoking also greatly increases the risk of stroke (USDHHS, 2014). Smoking causes coronary heart disease (USDHHS, 2014).
Smoking is a major contributor to development of cancer. Smoking is associated with bladder, breast, cervical, colorectal, esophageal, renal, laryngeal, liver, lung, oral cavity, pharynx, pancreatic, and stomach cancers as well as acute myeloid leukemia (USDHHS, 2014). For those diagnosed with cancer, quitting smoking improves outcomes (USDHHS, 2014). While the rate of smoking has lowered since 1964, the risk for adenocarcinoma of the lung has increased for smokers (USDHHS, 2014).

Smoking is implicated in the incidence of several chronic conditions. Numerous epidemiologic studies indicate that tobacco smoking is overwhelmingly the most important risk factor for COPD (USDHHS, 2014). Patients with asthma who smoke are more likely to have exacerbations of their asthma (USDHHS, 2014). Respiratory symptoms such as cough, mucous production, and wheezing are more common in people who smoke, and people who smoke are more likely to have respiratory infections including pneumonia (USDHHS, 2014). Smokers have a higher prevalence of cataracts, gum problems, osteoporosis, erectile dysfunction and fire-related injuries (USDHHS, 2014). Smoking is a cause of diabetes and increases the risk of diabetes by 30-40% (USDHHS, 2014). People with tuberculosis are more likely to have tuberculosis reoccurrences and to die if they smoke (USDHHS, 2014). Cigarette smoke contains substances that affect the immune system (USDHHS, 2014).

Tobacco smoking has numerous prenatal consequences. Smoking during pregnancy is associated with oral-facial clefis and causes fetal growth restriction and low birth weight (USDHHS, 2014). Smoking during pregnancy increases complications such as preterm labor, ectopic pregnancy, placenta previa, placental abruption, premature rupture of membranes, and fetal death (USDHHS, 2014). Infants of mothers who smoked have a greater risk of abnormal
l lung function (USDHHS, 2014). There is an increase in sudden infant death among infants of women who smoked during their pregnancy and afterward (USDHHS, 2014).

**Benefits of Smoking Cessation**

There are numerous health benefits with tobacco cessation. In New Jersey, there are 11,800 preventable deaths each year secondary to tobacco use (American Lung Association, 2019). In the first two months of cessation, the risk of heart attack begins to decrease, and lung function improves (CDC, 2017). After a year, the risk of heart attack decreases by 50% (CDC, 2017). Stroke risk returns to baseline after two to five years (CDC, 2017). Lung cancer risks decrease by 50% at ten years tobacco-free (CDC, 2017).

There are also financial benefits with tobacco cessation. Smoking costs $300 billion from both healthcare costs and the loss of productivity because of illness and death (Jamal et al., 2016; Jamal et al., 2018). Stanford professor Tom Glynn states, "When someone goes into a store and buys a pack of cigarettes, it costs the American taxpayer about $10 every time in lost wages, lost productivity and healthcare" (Gorenstein, 2015). New Jersey spends $4 billion on healthcare related to tobacco a year (American Lung Association, 2019). Reducing tobacco use provides decreased costs in healthcare in a short period (Lightwood & Glantz, 2016). Nationwide, a 10% decrease in prevalence would result in a $63 billion decrease in healthcare spending the next year (Lightwood & Glantz, 2016).

**Difficulties of Quitting Smoking**

While there are significant benefits of smoking cessation, quitting smoking is difficult. The nicotine in tobacco results in the release of neurotransmitters in the brain (USDHHS, 2014). The release in dopamine results in a positive effect that is reinforced with each cigarette (USDHHS, 2014). Over time, the brain adapts to nicotine exposure, and more nicotine is
required to get the same effect (USDHHS, 2014). When the brain does not receive the nicotine that it is accustomed to, withdrawal symptoms emerge (USDHHS, 2014). Withdrawal symptoms include depression, anger, irritability, hunger, insomnia, and a slower heart rate (National Cancer Institute, 2010; National Institutes of Health [NIH], n.d.). Only 20% of people who attempt to quit smoking for one day are still abstinent at six months (Messer, Trinidad, Al-Delaimy, & Pierce, 2008). Pharmacological agents and therapy increase the success rates for cessation (Fiore et al., 2008; USDHHS, 2014). Providers must therefore address withdrawal symptoms as part of a comprehensive treatment plan.

Tobacco use must be treated as a chronic disease (Fiore et al., 2008). Most people require numerous attempts to quit before achieving long-term abstinence (Fiore et al., 2008). Most adult smokers want to quit. In 2015, 68% of smokers wanted to quit (Babb, Malarcher, Schauer, Asman, & Jamal, 2017). Even contemplating quitting is an important step. When smokers are contemplating quitting, they are more likely to respond to education about quitting (Prochaska & DiClemente, 1983). Annually, 57.2% of smokers make a quit attempt of at least one day (Babb et al., 2017). Only 7.4% of smokers maintain that quit attempt (Babb et al., 2017).

**Smoking-Cessation Strategies**

Given the numerous risks of smoking and clear benefits of quitting, the U.S. Public Health Service Clinical Practice Guidelines suggest the 5As approach for tobacco users seen in clinical practice. The 5As approach has five component parts: Ask, Advice, Assess, Assist, and Arrange follow-up. *Ask* refers to having healthcare providers ask every patient at every encounter if they use tobacco or smoke. The *Advice* component refers to providing specific reasons why quitting smoking is important to each patient based on their health status and
needs. For providers to provide the *Assess* component, they need to understand the Stages-of-Change theory. *Assess* refers to helping the patient describe their current stage of readiness for quitting. The *Assist* component requires providers to offer behavioral and pharmacological assistance to those patients who are willing to set a quit date. If patients are not willing to set a quit date, providers can *Assist* patients by providing motivational interviewing and health related information regarding tobacco use. *Arrange follow-up* means that the provider ensure that the patient has a follow-up appointment after their quit date or has a referral to someone who will follow-up with the patient.

Primary-care providers should utilize the 5As approach to all patients, regardless of age, sex, or medical history. However, because most adults become daily smokers at a young age, the opportunities for primary prevention are greater for practitioners working with young patient populations. There are increased opportunities for secondary prevention for those working with people of lower socioeconomic status, lower education levels, mental-health disorders, other disabilities, and other populations that have increased smoking rates.

Interventions for tobacco cessation are effective, but they are underutilized. Provision of all “5 As” results in dramatic increases in smokers use of counseling and medication (Kruger et al., 2016). Receiving only three or four of the 5As also increased the use of cessation therapies, as compared to patients who only received none or one (Kruger et al., 2016). However, few healthcare providers are aware of them (Payne et al., 2014). The CDC found that only about half of smokers receive smoking-cessation advice from their providers (Danesh, Paskett, & Ferketich, 2014). Providers are less likely to use the interventions *Advice, Assess, Assist,* or *Arrange* with patients if they felt like they had competing priorities (Tong, Strouse,
Hall, Kovac & Schroeder, 2010). However, providers are more likely to discuss medication options for quitting if they have had cessation training (Tong et al., 2010).

Some healthcare settings are better suited for a shortened 5A intervention. Medical offices where the provider is not the primary physician, pediatricians who are counseling parents to quit, eye-professional offices where the providers provide only medications related to eye complaints, and medical offices that provide one-time urgent-care appointments that do not include later follow-up are ideally suited for a tobacco-cessation intervention that assist patients while recognizing the restrictions on the office. For these scenarios, 2As and 1R (AAR) has been developed. The providers Ask and Advise, and then Refer the patient to a resource that can help with tobacco cessation. The AAR technique is feasible. A relatively short educational intervention, 60-90 minutes, for healthcare providers regarding the AAR technique showed significant improvements in knowledge of and confidence in referring to a quitline (Chavarria, Liu, Kast, Salem & King, 2019). Asfar et al. (2018) developed a 3AIR intervention and made it available to eye-care professionals via the internet. The intervention consisted of Ask, Advice, Assess, and Refer (Asfar et al., 2018). The eye professionals in the Asfar et al. (2018) study increased their provision of smoking-cessation referrals to for their patients from 2.7% to 39.4% (p < 0.0001).

Quit lines are underutilized, but referrals are an effective method for decreasing tobacco usage. Quit lines are used by a small percentage of smokers (Kaufman, Augustson, Davis & Finney Rutten, 2010; Schauer, Malarcher, Zhang, Engstrom & Zhu, 2014). Data regarding recent quitline use is sparse in the literature. Kaufman et al. (2010) found that in 2007, 9% of smokers had used a quitline. In 2009-2010 there was a National Adult Tobacco Survey that many statistics about smoking are still based on (Schauer, et al., 2014). In 2009-2010, only
53.9% of current smokers were aware of quitlines (Schauer et al., 2014). Quitlines were used by only 7.8% of smokers who had one quit attempt in the last year and were aware of the quitline (Schauer, et al., 2014). The *Tips from Former Smokers* marketing campaign led to an increase in national and state quitline use (Zhang et al., 2016). When quitlines are used, few participants complete all the recommended calls (Lien et al., 2016). When used, quitlines have the potential to double smoking-cessation rates (Bernstein, Rosner, Toll & Zbikowski, 2016).

There is now better coverage for tobacco-cessation interventions. The Affordable Care Act (ACA) increased financial resources from tobacco cessation (McAfee, Babb, McNabb, & Fiore, 2015). The ACA requires insurers to cover two tobacco-cessation attempts in one year and prohibits cost-sharing for tobacco-cessation treatments for Medicare recipients (McAfee et al., 2015). Education about cessation assistance offered by health plans can substantially decrease smoking rates. In Massachusetts, prevalence of smoking in Medicaid patients dropped 10% when a cessation benefit was promoted (Land, 2010; McAfee et al., 2015).

**Needs Assessment**

Smoking cessation is a priority at the national and state level. In 2010, the USDHHS (2019) set goals for lowering tobacco use as part of Healthy People 2020. The CDC declared 2019 the “Year of Cessation” (American Lung Association, 2019). As part of its “Year of Cessation” the CDC (2018) is targeting messages throughout the year to help increase smoking cessation. Congress has maintained the current level funding for 2019 for the CDC’s Office on Smoking and Health (American Lung Association, 2019). New Jersey expanded its Medicaid coverage for tobacco cessation and now covers all seven FDA-approved cessation medications.
(American Lung Association, 2019; Leonard 2018). These national and state priorities will undoubtedly influence smoking-cessation rates.

The site for this project was a small private physician office in Mercer county. The prevalence of smoking in Mercer County is 13% (Health Care Resources, 2018). The office sees a variety of patients but has a large amount of the patients attend for employment physicals. The office usually saw 10-14 persons a day. Tobacco use is associated with lower socioeconomic status and lower educational level such as those patients who visit this office (CDC, 2019). Many of this office’s patients are truck drivers. Truck drivers smoke at a rate doubled that of the general population. In the most recent comprehensive data, the prevalence in from 2004-2010 among truck drivers was 28.7% (CDC, 2011).

A strengths, weaknesses, opportunities, and threats (SWOT) analysis was conducted to explore potential facilitators or barriers as they relate to the project. The facility itself had attributes that may affect the project. The facility had an easy-to-use electronic medical record (EMR) system. The population of patients of the office had a high prevalence of tobacco use and the director of the office was interested in the intervention. The office also had some weaknesses. There were limited treatment rooms available. Even though the intervention may be short, it could have been difficult to provide space for the intervention.

External factors could also affect the project. One opportunity was that the state of New Jersey recently increased funding for tobacco cessation assistance (Leonard, 2018). This additional funding increased the number of locations to refer patients and could increase healthcare workers’ willingness to refer patients. Another opportunity was the CDC’s “Year of Cessation.” The CDC targeted messages in each quarter of 2019 to increase smoking cessation. The Great American Smokeout, sponsored by the American Cancer Society (2019), took place
on November 15 and could act as a reinforcement to continue smoking-cessation efforts. Beginning in 2014, the ACA mandated tobacco-cessation assistance to be provided to all insured individuals at no cost to the patient (Lemaire, Bailey, & Leischow, 2015). One threat is that healthcare coverage is a political issue and the funding for cessation resources could vary. This could affect the project in unforeseen ways. Another external influence was that funding was recently increased the number of planned quit centers in New Jersey (Leonard, 2019). The new quit centers were fully functional in the fall of 2019 (Leonard, 2019).

**Problem Statement**

Tobacco use remains higher than desired in the population causing preventable disease, death, and unnecessary cost. Despite having interventions that are clinically proven to be effective, healthcare practitioners do not provide the interventions at the recommended levels. A modified AAR intervention could increase the rate at which providers provide smoking-cessation advice and increase smokers’ intention to quit.

**Clinical Question**

The clinical question guiding the project was, “Does brief educational intervention (AAR) improve smoking-cessation intent to quit and result in an increase in completed referrals to a quitline, choosing a quit date, and cessation attempts?”

**Aims and Objectives**

This Doctor of Nursing Practice (DNP) project’s aim was to increase use of the AAR approach to tobacco cessation and ultimately decrease tobacco use. In order to achieve this aim, several objectives must be met:

- Assess intent to quit and intent to seek help to quit smoking among participants prior to the intervention.
• Create and conduct a targeted educational intervention regarding the AAR for participants.

• Provide a comprehensive resource form for smoking-cessation resources in the area.

• Assess intent to quit smoking, intent to seek help to quit smoking, referral rate to the quitline, and quitting attempts two weeks later by telephone.

**Review of Literature**

A literature review was conducted using Medline, CINAHL, SCOPUS, and Joanna Briggs Institute. Grey literature was also searched for government sites, professional organizations, and conferences. The keywords used were smoking cessation OR tobacco use disorder, 5As OR 5 As OR 5-As OR AAR, interventions, intent to quit, quitline OR hotline and clinical practice guidelines. The articles were limited to English only, adults, and human subjects. Articles were also limited to those with full text available and those published between 2014 and March 2019. Studies were eligible for inclusion if they included referral to a quitline as a part of an intervention. Systematic reviews that included studies regarding quitlines were also included. Ten articles met inclusion criteria and were assessed for methodological quality using the John Hopkins Research Appraisal tools for research and non-research (Dearholt, & Dang, 2012) (see Appendix A). Of the articles included, 3 were randomized control trials of good quality and 6 articles were quasi-experimental of varying quality. One was a good quality systematic review.

**Quitline Usage**

Providing modified versions of the 5As results in increased quitline usage. Buettner-Schmidt et al. (2018) conducted a small pilot study in chiropractor offices to examine the
feasibility and usefulness of an AAR intervention. They also contacted patients to assess the advice they were given, and the patients’ quit attempts, whether they contacted the quitline, and their smoking behavior after the intervention (Buettner-Schmidt et al., 2018). Three patients (33.3%) had contacted the state quit program or a local health center regarding quitting (Buettner-Schmidt et al., 2018). Generalizations cannot be made from this data because the sample size was very small and the rate of response to the telephone survey is not available in the literature. However, this pilot study shows that the AAR intervention can provide meaningful benefits to patients.

Two other studies showed increased quitline use after providing an intervention. Mathew, Burris, Alberg, Cummings, and Carpenter (2015) provided an intervention encouraging participants who wanted to quit smoking in the next 30 days to contact a quitline. Thirty-four percent of 221 participants contacted the quitline. An increased motivation to quit was associated with increased quitline usage. Bernstein et al. (2016) found an increase in quitline use with their intervention. Participants in Bernstein et al. (2016) were provided with a motivational interview, nicotine replacement therapy, a referral to the quitline, and a booster call while the usual care group received the brochure for the quitline. After the intervention 25.3% of participants used the quitline.

Patient Smoking Outcomes

Quitlines can increase cessation rates by two to four times compared to those who do not use a quitline. Collins et al. (2018) completed a randomized-control trial for parents of young children (less than 11) that smoke. The control group received Ask, Advice, written materials and nutritional counseling by telephone. The intervention group received Ask, Advice, written materials, a treatment manual, and smoking-cessation counseling by telephone. In Collins et
al. (2018), the intervention group had 3.78 greater odds of quitting as compared to the control group at 3 months (OR = 3.78, p < 0.005). The ability to generalize these findings is limited due to the fact the population was parents of young children and their motivation to quit may be higher than the general population. Lepore et al. (2018) published the 12-month results of the intervention described by Collins et al. (2018). Lepore et al. (2018) found that those participants in the intervention arm had 12 month quit rate of 15.2% compared to 6.7% in the control group (OR 2.47, 95% CI[1.10.5.54] p = 0.029). A higher nicotine dependence level decreased the likelihood of long-term cessation (p = 0.006). Notably, both arms of the study instituted behaviors to reduce children’s exposure to tobacco smoke. Also, both groups contacted the state quitline at similar percentages 27.8% for the intervention and 25.7% for the control. This study showed that telephone support increases cessation rates and that physician advice can have a meaningful effect on patient behavior and self-referral rate to quitlines. Mathew et al. (2015) found that quitline callers were more likely to quit smoking for one and for seven days than those that did not call, even after adjusting for a higher motivation to quit (OR 1.1,95% CI[0.6-2.0]; OR 1.5, 95% CI[0.7-34]). In the pilot study by Buettner-Schmidt et al. (2018), nine out of fifteen patients had made a quit attempt of at least one day at the 30-day follow-up. The response rate decreased to six patients at six months. However, at six months one patient reported having quit all tobacco products for more than four months and three patients had made a quit plan (Buettner-Schmidt et al., 2018). Because of the small size and the unknown response rate, these results cannot be generalized, but they show that the AAR intervention has merit. An earlier systematic review showed a more modest effect size, but it did show that telephone counseling increased cessation rates (RR = 1.27, 95% CI[1.20,1.36])(Hartmann-Boyce, Stead, Cahill, & Lancaster, 2014). Asking about tobacco use,
providing *Advice*, and *Referring* to a quitline has the potential to increase smoking abstinence rates by two to four times.

**Quitline-Use Intensity**

Quitlines provide various services but most include a number of telephone counseling sessions. Multiple studies have shown that greater quitline use results in higher cessation rates. Bernstein et al. (2016) found that greater quitline use was associated with increased abstinence rates. Participants were dividing into those who called once and those who had more than once call. Those participants who had more than one call had a 68% higher abstinence rate (Bernstein et al., 2016). Lien et al. (2016) evaluated quitline use in Minnesota and Pennsylvania. Completing five phone calls was associated with higher cessation rates in Pennsylvania callers but not in MN callers (Lien et al., 2016). It is possible this difference is because of the differences in sample size or differences in the population. The callers from Minnesota were underinsured or uninsured; the callers from Pennsylvania were a combination of insured and uninsured. Lent, Reikowsky, Nair, and Bell (2018) found that those callers that had five or more calls to the Arizona Quitline as compared to those that had less than five had an increase in quit rates (OR = 2.87, 95% CI[2.38-3.45] p <0.0001). Piñeiro et al. (2019) found that an increased number of completed calls to the quitline corresponded to greater self-reported and bio-verified cessation rates. Completing two sessions increased odds of cessation by 83% (OR = 1.83, 95% CI[1.39,2.41]). Completing three sessions increased self-reported abstinence by nearly four times (OR = 3.70, 95% CI[2.89,4.72]). The systematic review by Hartmann-
Boyle et al. (2014) also found a higher number of calls to a quitline was correlated to a higher cessation rate.

**Self-Refer or Connect to Services**

Smokers can be connected to quitlines in different ways. People can self-refer after seeing an advertisement, people can proactively call after being advised to by a healthcare practitioner, or the healthcare practitioner can connect the person to the quitline by fax or through the electronic medical record. Bernstein et al. (2016) compared participants who had the referral made for them and those who called the quitline themselves. Connecting participants to the quitline instead of having the participants call the quitline themselves resulted in 70% increase in use of quitline services (Bernstein et al., 2016). However, it is difficult to ascertain if this increase was related to the connection to care or to the motivational interview, nicotine replacement therapy and/or booster call. Notably 22% of the usual treatment group also called the quitline. Lent et al. (2018) compared quitline users’ method of referral and quit rates. Lent at al. (2018) compared those directly referred by a healthcare provider, those who called themselves after being told by a healthcare provider to call, and those that called after seeing an advertisement. Lent at al. (2018) theorized that those directly referred would have higher quit rates. However, those directly referred by a healthcare provider had a lower rate of quitting (OR=0.75, CI 95% [0.56-0.99]). There were significant differences in the motivation to quit, health status and tobacco use in the three groups that could partially explain the lower rate of cessation. Connecting patients to quitlines increases the number of people who complete
quitline calls. How smokers get connected with quitline services can influence cessation rates, but no matter how smokers are connected quitlines still provide a benefit.

**Intention to Quit Smoking and Motivation to Quit Smoking**

Intention to quit smoking is frequently measured in studies as evidence of increasing smoking-cessation behaviors. De Vries, Eggers, and Bolman (2013) completed a prospective correlational study on 1005 people who had smoked for at least 5 years. Smokers who intended to quit smoking in a month used more action plans for smoking cessation than those that intended to quit in one year. Using more action plans was associated with successful cessation attempts. Mathew et al. (2015) found that people with higher levels of motivation to quit smoking were more likely to contact a quitline.

**Conclusions**

Educating about the harms of smoking and about the availability of smoking-cessation services like quitlines increases quitline use and cessation rates. Notably, some studies showed an increase in cessation even when the quitline was not used. Best results were achieved with quitline use. Increasing the frequency of contact with a quitline increases cessation rates. Education for smokers should include the importance of quitting, resources that are available to help quit, and how the resources can best help with cessation.

**Theoretical Framework**

This project followed the quality-improvement framework provided by Dr. W. Edward Deming to implement interventions and to provide continuous improvement (The W. Edwards Deming Institute, 2019). The Deming cycle is commonly known as the Plan, Do, Study, Act (PDSA) cycle (see Appendix B). The framework is conceptualized as a circle, because it can be used as a continuous process of improvement. The cycle starts in the Plan step, where it is
important to identify a goal, an intervention, and a way to measure the goal. The *Do* step requires instituting the Plan. In the *Study* step, the outcomes related to the goal are measured and analyzed. The *Act* step requires using what was learned in the previous steps to improve and continue the process of improving (The W. Edwards Deming Institute, 2019).

In the *Plan* step for this project, the importance of smoking cessation has been identified. Evidence-based practice and clinical guidelines guided the development of the intervention. The best tools for measuring outcomes were identified. The educational intervention was constructed.

In the *Do* step, the intervention was implemented. After consent, participants filled out questionnaires. An educational intervention regarding the benefits of quitting smoking was presented to each participant along with different ways to get help with smoking cessation. The participants were provided with the educational packets. The participants completed two of the questionnaires again. The participants chose if they want a referral made to the New Jersey Quitline. After two to three weeks, the participants were contacted, and two of the questionnaires were given over the phone.

In the *Study* step, the before and after questionnaires were compared to see if there was any meaningful increase in intention to quit. The number of participants who sought assistance to quit smoking and those who attempted to quit smoking were compared to the number of participants who previously sought assistance to quit smoking and those who attempted to quit smoking. The data was evaluated to look at possible confounding variables.

For the *Act* step, conclusions were drawn from the data. Based on the data obtained, improvements were made. The intervention results were presented to the project site. The project site decided how it will continue to use the intervention. The results of the project and
possible improvements will be disseminated so that other populations can benefit from the project.

**Methodology**

The proposed pilot project used a quasi-experimental methodology with a pre-post design. Participants were smokers at a primary-care office. Educational intervention and smoking-cessation resources were provided for all participants. The participants were encouraged to contact the New Jersey Quitline or another quit resource and to make plans to quit smoking. After two weeks, a telephone survey was used to collect data on their intention to quit and their seeking help for smoking cessation.

**Setting**

The setting for this project was a single provider office in a suburban, central New Jersey town. The office employs one person as front-office staff and one medical assistant. There are two exam rooms. The office provides employment physicals and primary-care services. The practice is divided between approximately 75% employment physicals and 25% primary-care visits. The office had approximately 3,000 patient visits per year in 2018 and the first half of 2019.

**Study Population**

This project included a convenience sample of men and women in central New Jersey from a primary-care practice who are current smokers. Inclusion criteria for this project were English-speaking participants 18-years-old to 89-years-old who report smoking in the last seven days. Persons who use only electronic cigarettes or “vape” were not be considered as current smokers for this project. Persons who use smokeless tobacco or electronic cigarettes and do not
smoke conventional cigarettes were excluded but were provided with quitline information if they requested it. Pregnant women were also excluded from participation.

A power analysis was completed using a calculator from ClinCalc (2018). The assumed rate of current use of a quitline was 9%. Based on the review of literature, the estimated use of a quitline after the intervention is at least 12%. The calculation was completed with a 5% margin of error and 95% confidence level. The sample size needed to detect differences pre and post intervention was 18. Assuming a 20% attrition rate, the minimum sample needed was 22 participants. This project attempted to recruit up to 35 participants to ensure that a smaller effect size and attrition did not affect the reliability of the results.

**Subject Recruitment**

Information about the tobacco cessation education was shared by recruitment posters. The posters were displayed in the office waiting room and in each examination room. The co-investigator also recruited participants in-person during office visits. The recruitment attempts occurred in the examination room by the co-investigator after the patients’ appointments were completed. The co-investigator was informed verbally by the office staff of patients who smoke. The co-investigator approached potential participants and provided information regarding the project. In addition, a handout summarizing the project was be given to potential participants. The handout included contact information, with email and telephone number, for any questions or concerns. Potential participants were informed that educational intervention was a voluntary, supplemental service and that their decision to participate would not impact the usual care provided. Copies of the recruitment materials can be found in Appendix C. Recruitment took place over a two-month period.
Consent Procedure

Informed consent was sought from each participant. All patients who agreed to participate signed the informed consent form, which was collected by the co-investigator before project implementation (see Appendix D). Potential participants were approached after their appointment in order to mitigate the chance of coercion. The obtaining of consent took place in one of the exam rooms. Participants were assured that their decision on participation will not affect their care at the office. The steps to the project were explained before the participants signed their consent. Participants were given adequate time to read the consent form and ask questions. Participants were informed that they could withdraw from the project at any time. Participants who did not want to participate in the project, but who expressed interest in smoking-cessation information, were given the New Jersey Quitline information and were encouraged to discuss their interest with their healthcare provider. If participants wanted to have a referral form for the New Jersey Quitline, they were given the blank form to present to their healthcare provider (see Appendix E).

Risks/Harms/Ethics

The co-investigator informed potential participants about possible risks or harms before obtaining informed consent. The potential for risk or harm for this project was minimal. The project was intended to benefit participants by increasing their likelihood of smoking cessation and thereby to decrease their health risks. Benefits included increasing the participants’ knowledge of the benefits of smoking cessation and of resources available for smoking cessation.

Potential risks included the possibility of breaching privacy and confidentiality. Collection of participant data included name, email address, and telephone number.
minimize this risk, participants were given a random identifier number that was composed of five digits from a computerized random number generator. This number was used on all questionnaires. The master key (participant’s personal data and random identifier number) was kept on secure, dedicated laptop computer that was not connected to the internet. Only the co-investigator had access to this computer. Only the participants’ personal information was linked to the random number on that computer and that computer was kept password protected. This master key file will be destroyed at the end of the project. Private information was not disclosed to any other entities.

Participants could experience mild psychological discomfort (guilt) discussing their smoking practices and how smoking affects their health. Participants could experience mild discomfort at the thought of quitting smoking. To mitigate this risk, the co-investigator created an environment that was comfortable and interacted with the participants in a nonjudgmental way.

For participants who decided to make quit attempts during the two weeks between the intervention and the follow-up phone call, there could be withdrawal symptoms from smoking cessation. These symptoms include feeling irritable, sad, restless, hungry, and/or cravings; or having a slower heart rate, trouble sleeping, and/or trouble concentrating (NIH, n.d.). To mitigate these risks, participants were given information about withdrawal symptoms and the ways to decrease withdrawal symptoms. Participants were also encouraged to seek help from their provider or the New Jersey Quitline if withdrawal symptoms were distressing or very uncomfortable.
Subject Costs and Compensation

There was no cost for participating in the project. Participants who completed the questionnaire during the two-week follow-up phone call were e-mailed a $10 Amazon® gift card. The payments were logged in the computer next to the demographic information for each participant.

Study Interventions

This project had a pre-post project design. Participants (1) were asked if the smoke, (2) had their readiness to quit assessed by questionnaires, (3) were instructed on the benefits of quitting and about available quitting resources, and then (4) completed a survey about their readiness to quit pre and post intervention. Participants were contacted (by email or phone) two weeks after the educational intervention to evaluate their attempts to contact New Jersey Quitline and/or quit smoking.

Pre-intervention

Before the intervention the participants completed a demographic survey (see Appendix F), a smoking history form (see Appendix G), and the Cigarette Dependence Scale-5 (CDS-5), from Etter (2005), to assess the intensity of nicotine dependence (see Appendix H). The CDS-5 is available for use without requesting permission. The co-investigator obtained consent to use the scale from Dr. Etter (see Appendix J). Participants answered questions on their intention to quit smoking (ITQS) and their intention to seek help for quitting smoking (ITSHQS) in a combined form from Wong and Capella (2009) (see Appendix I). Permission to use the ITQS and ITSHQS for this project was granted by the authors (see Appendix K).

Intervention
The educational component was the independent variable. The education included advising the participants of the benefits of quitting (see Appendix L). The content of the educational intervention was based on information provided by the New Jersey Department of Health, New Jersey quitline (NJDOH, n.d.). The participants were instructed about the New Jersey quitline website and referral process, the CDC’s Smokefree.gov website, and the applications QuitGuide and quitSTART (NJDOH, n.d.; USDHHS, n.d.). The participants received a folder with educational handouts that were developed for the New Jersey quitline, including how to reach their local New Jersey Quit Center. The pamphlets included were *7000 Chemicals* (see Appendix M), *Beat Boredom* (see Appendix N), *Medication Chart* (see Appendix O), *Relapse* (see Appendix P), *Withdrawal* (see Appendix Q), *Relax without Lighting Up* (see Appendix R), *Stress* (see Appendix S), and *Triggers* (see Appendix T).

**Post-intervention**

After the education component, the participants again completed the questions on intention to quit smoking and intention to seek help for quitting smoking. The co-investigator gave participants the Fax-To-Quit form from the New Jersey Quitline to give to their provider if desired.

**Follow-up**

Two weeks later, the co-investigator contacted the participants by telephone or email. Three attempts were made to contact participants. The participants completed a telephone survey regarding any quit attempts that they have made, assistance to quit that they have sought, and on their current intention to quit smoking, and intention to seek help for quitting smoking. Participants who completed the telephone survey received the $10 gift cards by e-mail.
Outcomes to Be Measured

The measured dependent variables were use of the quitting resources, any quit attempts of at least one day, changes in the ITQS levels, and changes in the ITSHQS levels. Demographic information such as name, age, and phone number and email were collected on the demographic form, as well as number of pack years smoked. Before the intervention, the questionnaires that were used were the CDS-5, and the combined ITQS and ITSHQS was administered to the participants. The CDS-5 has good internal validity ($\alpha = 0.77$; Etter 2005). The full Cigarette Dependence Scale 12 (CDS-12) has higher validity ($\alpha = 0.91$) but takes more time to complete (Etter, 2005). The ITQS is a valid instrument with $\alpha=0.84$ (Wong & Capella, 2009). The combined ITQS and ITSHQS were administered immediately post-intervention and at a 2-week follow-up (see Appendix U). In addition, during a 2-week follow-up, the participants were asked if they made any quit attempts (lasting at least one day) and how many quit attempts they made (see Appendix V). They were also asked if they used any quitting resources and whether the resources were a telephone quitline, a website, or a mobile application.

Project Timeline

The project timeline was originally scheduled to be completed by February 2020 (see Appendix W). After IRB approval, the implementation phase started in January 2020 and continued through March 2020. Data collection took place from January 2020 through March
2020. The data was analyzed in March 2020. The evaluation and writing were completed by March 31, 2020. Final presentation took place on April 13, 2020.

**Resources Needed**

All costs for this project were the responsibility of the co-investigator. The anticipated budget for this project was $640, however due to a lack of participants the actual cost was $369 (see Appendix X). Flyers and posters for recruitment cost $75. One expense was the form of the Amazon® gift card which cost be $10. The participants were provided folders with educational materials, for a total cost of $120. The statistics software for this project cost $89. The dissemination poster cost $75.

**Evaluation Plan**

**Data Analysis**

Data analysis was assisted by a computer software, IBM SPSS Statistics for Windows, Version 26.0. Demographical data was analyzed using descriptive statistics. Analytical statistics were unable to be used to assess changes in intention to quit and intention to seek help with quitting due to the small sample size. Quit attempts and use of cessation resources were compared to the pre-intervention answers on the participant who completed the two-week follow-up. Association between intention to quit and quit attempts could not to be compared.

**Data Maintenance and Security**

Each participant was assigned a random participant number. The random numbers were generated by a computerized random number generator. The participant number was entered on the questionnaires. Only the demographic form had personal information on it. The demographic form’s information was entered into the computer and the participant number was listed in the computer. The computer was the only place that the demographic information and
the participant number were listed together. The demographic information form was destroyed immediately after the information was entered in the computer. All personal information was kept on that computer which was password protected. The computer was disabled from connecting to the internet or other computers while the information was being stored on the computer. Only the co-investigator had access to the computer. The questionnaires were kept in a locked drawer at the research site. After the project is completed, IRB closure is obtained, and the final manuscript is written, all data will be destroyed in accordance with Rutgers University guidelines. Hard copies of the consents and aggregate data will be housed in the office of the Doctor of Nursing Practice Project Chair at Rutgers University, Stanley S. Bergen Building, 65 Bergen Street, Newark, New Jersey 07107.

Results

A total of three participants were enrolled in the study. Only one participant completed the two-week follow-up phone call. Therefore, there were no aggregate results of the two-week follow-up.

Characteristics of Participants

The participants consisted of one female and two males. The age range was 31-64. The number of years smoking was between 12 and 49. The number of cigarettes smoked a day was between 10 and 60. The CDS-5 scores ranged between 14 and 23 on a scale of 0 to 25. Two participants attended some college, while one participant finished high school.

Limitations in Obtaining Participants

Two major limitations in obtaining participants were (1) a decrease in patient flow in the office and (2) the fact that several previous smokers had recently quit. The practice relocated during the fall of 2019, which caused the practice to closed for over one month during the
move. The practice had a significant decrease in patient load after that move. Before the move, approximately 20-40 people would come through the office for laboratory testing, employment physicals, and private-practice visits daily. After the move, practice volume was three to ten people per day. The recruitment goal for this project was 35 participants. This project had just three participants, and two of them (67%) did not participate in the two-week follow-up call.

**Persons Who Were Not Included**

Three potential participants who were interested in the project were not included. Two of them had already quit smoking in the last month and did not smoke in the last week, and one had solely vaped tobacco. All three of the people requested and were provided with the educational intervention, but they could not be included in the project.

**Effect of Education on ITQS and ITSHQS**

The effect of the education intervention on ITQS and ITSHQS cannot be determined because of the small sample. The mean ITQS increased from 5.3 to 7.7 after intervention. The mean ITSHQS decreased from 5.3 to 3.7 after the intervention. Significance and validity cannot be determined because of the small sample size. The participant that completed the two-week follow-up decreased their smoking to one pack-per-day from three packs-per-day. Their ITQS increased from five to nine, which reflects an increase in their confidence in quitting smoking. He planned to quit smoking in two weeks. He did not use any quit resources but did discuss quitting with his healthcare provider.

**Variation of Interpretation of “Seeking Help” Question**

Participants stated a different understanding of “quit resources” and “seeking help” before and after the educational intervention. Some participants before the education considered coming to speak to their physician and co-investigator as “seeking help” to quit
smoking. After the intervention they seemed to consider quit lines, quit centers and quit
applications as “seeking help”, rather than speaking to their physician. This variation suggests
that the question itself on the ITQHS form is ambiguous and could be clarified on future forms.

**Discussion**

This project cannot be used to draw conclusions about the effectiveness of the
educational component. This project did not meet all of its objectives. In January 2020,
however, the Surgeon General published an updated report on smoking cessation. The Surgeon
General’s report reiterated that the importance of counseling from healthcare providers
regarding smoking cessation. *AAR* was found to be supported by research (CDC, 2020).
Consistent with the CDC report, this project found that such an educational intervention was
feasible.

There were significant limitations with this project. The key limitation was the low
number of participants enrolled. This lack of participants meant that no statistical tests or
analysis would be valid. Another limitation was the lack of two-week follow-up contact with
the participants. If another project like this were undertaken, the investigators should consider
ways to increase the rate of two-week follow-up contact.

**Achievement of Objectives**

The objectives of this project were only partially met. Participants’ intention to quit
smoking and intention to seek help to quit smoking were assessed. The targeted educational
intervention and the comprehensive resource form for smoking-cessation resources in the area
were provided to a limited number of participants. However, because of attrition the co-
investigator was unable to assess intent to quit smoking, intent to seek help to quit smoking,
referral rate to the quitline, and quitting attempts two weeks later by telephone for all participants.

There was not enough data to determine whether the educational program statistically increased ITQS or ITSHQS. Thus, only non-statistical, subjective results are available. The educational component was well received by the participants. The participant that completed the two-week follow-up successfully decreased his smoking and had an increase in his confidence in quitting smoking. However, the fact that two participants did not respond to the phone calls could mean that they did not find the educational component useful. The educational component was completed in less than five minutes and was easily accomplished.

Facilitators and Barriers

The director of the facility was a key facilitator. She informed the co-investigator about the days that had the most patients coming to the facility, so the co-investigator could be present on those days. She also allowed prominent placement of the recruitment posters.

The barriers to reaching the project’s objectives were mostly related to a lack of participants. Decreased patient flow into the practice was one barrier. A second barrier was that several people who could have been participants had previously quit smoking, which may be related to the timing of the project. The project started after January 1 (New Year’s Day), when many people attempt to quit, and this may have decreased the eligible participants.

Unintended Consequences

Even though talking to a healthcare professional was listed in the educational component as one way to seek help after the educational component, participants did not seem to consider going to a healthcare professional as “seeking help” for the questionnaire. This may have changed the ITSHQ scores. This may also have had the unintended consequence of
decreasing reliance on their healthcare provider for assistance. This possibility appears unlikely, because all three participants requested to speak to their provider about smoking cessation after the intervention. There were no known adverse events during the project.

Implications

Clinical-Practice Implications

The educational intervention can be easily incorporated into practice where a longer intervention such as the 5As is not practicable. This project did not determine that the intervention produced a statistically significant change in smoking cessation because of the very limited sample size. The one participant who did complete the project, however, decreased his tobacco consumption from three packs to one pack-per-day and he intended to completely quit in the next two weeks. Additionally, he scored higher in his motivation to quit after the intervention. The Surgeon General’s report recently reaffirmed that using behavioral counseling, such as quitlines and medication are more effective than self-help or no treatments (CDC, 2020). Educating patients about treatments that are most effective should be part of every health practitioner’s practice. The report states that quit line counseling, text message services, and web- or Internet-based interventions can increase smoking cessation. However, smartphone apps have not yet been proven to increase smoking cessation. Therefore, practitioners should be cautious about recommending smartphone apps.

Healthcare-Policy Implications

All participants seemed unaware of exactly what services the NJ quit line offered or that there was a NJ quit line. One participant stated, “I know NY has a quit line, but I didn’t know that NJ had one.” Mass-media campaigns are known to increase calls to quitline and thereby increase smoking cessation (CDC, 2020). Despite an increase in smoking-cessation spending
by NJ and the development of quit centers in the state, NJ received an F rating from the American Lung Association in 2020. This was in part attributable to the amount of money spent on tobacco cessation. NJ could increase its spending on mass-media campaigns not only to advertise that the quit line exists but also to inform smokers that quit lines increase smoking cessation and what services quit lines provide. The co-investigator has found that many health care providers also do not know about the quit line or quit centers. NJ should spend resources to inform healthcare professionals about these services. Free continuing-education credits to providers would increase awareness of the value of quit lines and quit centers.

**Implications for Quality**

Assessing smoking status and offering treatment are the standard of care for healthcare providers. While the 5As have been recommended for decades, other techniques like AAR, also called *Ask-Advise-Arrange* (AAA), can be used in settings where they are appropriate (CDC, 2020). The CDC’s (2020) recent guidance has affirmed the usefulness of the AAA and quit lines. Having shorter and more flexible techniques for healthcare providers to assist with smoking cessation will increase how many smokers are advised to quit and thereby will decrease smoking rates.

Quality in healthcare is measured in a number of ways. One set of measures was created by the National Committee of Quality Assurance (NCQA, 2020). The NCQA created the Healthcare Effectiveness and Information Data Set (HEDIS) as a performance improvement tool. HEDIS gives consumers the opportunity to see and compare the quality ratings of different health plans (American Lung Association, 2019). Many providers have some of their reimbursement based on how they meet HEDIS measures. Three measures upon which providers and health plans are evaluated are whether they advise tobacco users to quit, discuss
ways to quit, and discuss cessation medications (American Lung Association, 2019b). The educational intervention from this project would be one way to meet these measures.

Every healthcare practice should record smoking and tobacco use at each visit and what measures were taken to address tobacco use. The education used in this project took approximately five minutes and can be billed by the practice as a separate item. Assessment of smoking status and the educational intervention can be completed by properly trained ancillary staff if needed. This project demonstrated the feasibility of such an intervention.

**Implications for Education**

Since the CDC (2020) reaffirmed the importance of healthcare providers educating patient about smoking cessation, including the *AAA* or *AAR*, colleges and universities should include education for healthcare providers about the different methods of patient smoking-cessation counseling and quit resources available to them and about the importance of such patient education.

**Economic Implications**

Statistical evidence for using quit lines or quit centers could not be shown with this intervention. Anecdotally, the three participants had no or low knowledge of the quit resources prior to the education. Decreasing smoking rates in the U.S. will require changes in healthcare policies to increase spending on smoking cessation to the CDC’s recommended level. NJ has made strides towards increasing cessation by having a quit line and quit centers but needs to
increase the level of spending to educate the public about quit resources (American Lung Association, 2020).

**Sustainability**

This project can easily be sustained at the office. The office is now asking all patients if they smoke. Fax-to-quit forms from the state of NJ and the NJ quit line informational forms were given to the office. The office secretary was instructed on how to print additional forms. The practice manager was instructed on what charting and billing codes can be used to meet HEDIS quality measures.

**Future Scholarship**

The results will be shared at the practice where the intervention took place. The project’s results will be reported as part of the DNP degree requirements. The results will also be shared at the Research Poster Day at Rutgers University.

Although this project could not provide statistically evidence for an AAR intervention, it did show areas where future scholarship is needed. Future DNP students could tailor this project for another site with an adequate number of patients to obtain the participant sample size needed to investigate if the seeming change in ITQS and ITSHQS scores found in this project are statistically accurate. In particular, the anomalous and unexpected result that the ITQS increased whereas ITSHQS decreased should be verified and evaluated. An improved form with more clarity concerning the meaning of “seeking help” could be developed. Future projects should ensure that all methods of smoking cessation support are encouraged. Future research could also investigate reasons that participants are reluctant to use quit lines and investigate ways to decrease this reluctance.
Conclusion

Smoking continues to be the leading cause of preventable disease in the U.S. This project showed that a shortened version of the 5As is feasible but no conclusive findings can be made because of the small sample size. However, the AAA/AAR approach has been found to increase smoking cessation according to the CDC. New technologies will continue to change the options healthcare providers have for assisting their patients to quit smoking.
References


http://dx.doi.org/10.1177/1090198117709883


https://dx.doi.org/10.1016/j.jsat.2016.08.014
http://dx.doi.org/10.1186/s12998-018-0214-y


https://www.cdc.gov/tobacco/quit_smoking/how_to_quit/benefits/index.htm


https://pediatrics.aappublications.org/content/141/Supplement_1/S75/tab-figures-data


https://dx.doi.org/10.1186/1471-2458-13-393


http://dx.doi.org/10.15585/mmwr.mm6544a2


http://dx.doi.org/10.15585/mmwr.mm67


doi:10.1080/10810730.2010.526172


http://dx.doi.org/10.1186/s12889-016-2798-2

*PLoS Medicine*, 7(12), e1000375-e1000375.

http://dx.doi.org/10.1371/journal.pmed.1000375


https://dx.doi.org/10.1097/PHH.0000000000000382

http://dx.doi.org/10.1371/journal.pm


https://dx.doi.org/10.1177/089017116646344
Appendix A

Table of Evidence: Smoking-cessation Referral Interventions

Clinical Question: Does an educational intervention increase referrals to quitlines and increase intention-to-quit smoking?

<table>
<thead>
<tr>
<th>Article#</th>
<th>Author &amp; Date</th>
<th>Evidence type</th>
<th>Sample, Sample size, Setting</th>
<th>Study findings that help answer the EBP Question</th>
<th>Limitations</th>
<th>Evidence level and Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bernstein, S. L., Weiss, J. M., Toll, B., &amp; Zbikowski, S. M.</td>
<td>Randomized control trial</td>
<td>ER northeastern US hospital ED patients Either non-insured or insured by Medicaid 390 in intervention group 386 in usual care group</td>
<td>1. Connecting to quitline rather than self-referral increases treatment by 70% (32% compared to 18%). 2. Intensity of calls i.e. higher number of calls is associated with higher abstinence rates. Having more than one call to the quitline doubled abstinence rates compared to no calls at 3 months (9.2%, 15.3% p=0.03)</td>
<td>1. Single site ER population 2. Intervention had many components making it difficult to discern which variable changed outcomes</td>
<td>IA</td>
</tr>
<tr>
<td>2</td>
<td>Buettner-Schmidt, K., Maack, B., Larson, M., Orr, M.</td>
<td>Pilot study Quasi-experimental Pre and post</td>
<td>Chiropractic offices in North Dakota 6 offices Patients were given telephone surveys at 30</td>
<td>1. New patients were asked if they smoked, advised to quit, and referred patients to quitline 2. 80% of respondents recalled being referred 3. 60% of the respondents had made at least one quit attempt 4. 2 patients (22.2%) contacted the</td>
<td>1. No information on number of patients they attempt to survey 2. Small pilot program</td>
<td>IIB</td>
</tr>
<tr>
<td>3</td>
<td>Collins et al.</td>
<td>RCT</td>
<td>Pediatric office</td>
<td>Parents who smoke</td>
<td>327 smokers</td>
<td>83% women</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Miller, D. R., &amp; Mills, K.</td>
<td>2018</td>
<td>days and 3 months post referral</td>
<td>No detail on how many patients were attempted to be surveyed</td>
<td>15 patients responded to surveys</td>
<td>quitline</td>
<td>5. 1 patient (11.1%) contacted the local health unit to assist</td>
</tr>
<tr>
<td></td>
<td>Authors</td>
<td>Study Design</td>
<td>Participants</td>
<td>Intervention</td>
<td>Findings</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------</td>
<td>-----------------------</td>
<td>----------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>de Vries, H., Eggers, S. M., &amp; Bolman, C. 2013</td>
<td>Comparative design</td>
<td>1005 people who smoked for 5 years and wanted to quit in the next year filled survey at 1 month filled out web questionnaire</td>
<td>1. Having increased intent to quit (sooner) increases action plans for quitting 2. More action plans = increased cessation</td>
<td>1. Netherlands 2. Drop off of replies at 6 months</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lent, A., Reikowsky, R., Nair, U., &amp; Bell, M. 2018</td>
<td>Retrospective observational</td>
<td>3397 quitline users from Arizona Medicaid patients</td>
<td>1. Comparison of provider actively referred, passively referred and self-referred quitline users and quit rates. 2. Large differences in the motivation level, the health and tobacco use of the groups confounded results. 3. Provider actively referred had lower quit rates (OR=0.75, CI 95%, 0.56-0.99) 4. More calls increased quit status (OR 2.87, CI 2.38-3.45, p &lt; 0.0001)</td>
<td>1. Survey completion rate 41.5% 2. Differences in motivation, health and tobacco use between groups.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Lepore et al. 2018</td>
<td>Randomized control trial</td>
<td>Households with children under 11 Philadelphia Low-income</td>
<td>1. Continuation of the Collins intervention 2. A4R intervention increased quit rate from 6.7% to 15.2% (p=0.029) at 12 months 3. The control group also responded to the physician</td>
<td>1. This is a continuation of results mentioned above</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Authors</td>
<td>Intervention Methodology</td>
<td>Sample Size</td>
<td>Findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>--------------------------</td>
<td>-------------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lien, R. K., Schillo, B. A., Mast, J. L., Lukowski, A. V., Greenseid, L. O., Keith, J. D., &amp; Keller, P. A.</td>
<td>Retrospective, observational</td>
<td>17,203 quitline callers in PA and MN 14359 from PA 2844 from MN</td>
<td>1. For PA quitline users more calls to quitline was associated with more participants quit for 30d at follow-up (p&lt;0.001) 2. For MN users more calls did not have a significant increase with cessation p=0.367 3. Few participants completed all 5 calls from the quitline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Mathew, A. R., Burris, J. L., Alberg, A. J., Cummings, K. M., &amp; Carpenter, M. J.</td>
<td>Retrospective, observational</td>
<td>221 people who smoked nationwide 66% female Interested in quitting smoking in the next 1 month</td>
<td>4. Higher motivation to quit smoking linked to use of quitline (p&lt;0.001) 5. Quitline callers 4.3OR (CI 2.3-8.1) of using cessation medication 6. Quitline users more likely to make a quit attempt and to have 7 day abstinence (OR 1.5, CI 0.9-2.7; OR 2.0, CI 1.0-4.2) 7. The higher cessation rates of quitline users persisted even</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Study/Methodology</td>
<td>Population/Evaluation</td>
<td>Outcome(s)</td>
<td>Limitations/Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>-------------------</td>
<td>------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Pinheiro et al.</td>
<td>Prospective</td>
<td>Increased number of completed calls = greater reported and bio-verified cessation (OR 1.1, CI 0.6-2.0; 1.5, CI 0.7-3.4)</td>
<td>AAC may enroll less motivated smokers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2019</td>
<td></td>
<td>2. Completing two sessions increased odds of cessation (OR 1.83, 95% CI: 1.39, 2.41)</td>
<td>Texas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Completing three sessions nearly 4x self-reported higher abstinence (OR 3.70, 95% CI: 2.89, 4.72)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Use of NRT increased cessation rates (OR 1.81, 95% CI: 1.50, 2.17)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Hartmann-Boyce, J., Stead, L. F., Cahill, K., &amp; Lancaster, T. (2014).</td>
<td>Systematic review</td>
<td>Higher frequency of calls = higher effect size</td>
<td>Limited number of new studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Telephone counseling increased cessation (RR = 1.27, 95% CI: 1.20, 1.36)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Smokers put in contact increased quit rate at longest f/u r = 1.37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>95% CI [1.26-1.50]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Fiore, M. C., Jaen, C. R., Baker, T. B., Bailey, W. C., Benowitz, N., L., Curry, S.</td>
<td>Clinical Practice Guidelines sponsored by 8 Federal Government and nonprofit organizations</td>
<td>Ten Key Guideline Recommendations 1. &quot;Tobacco dependence is a chronic disease that often requires repeated intervention and multiple attempts to quit. Effective treatments exist, however, that can significantly increase rates of long-term quit.</td>
<td>Has not been updated in 10 years.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When adjusted for motivation levels (OR 1.1, CI 0.6-2.0; 1.5, CI 0.7-3.4).
It is essential that clinicians and healthcare delivery systems consistently identify and document tobacco use status and treat every tobacco user seen in a healthcare setting.

3. Tobacco dependence treatments are effective across a broad range of populations. Clinicians should encourage every patient willing to make a quit attempt to use the counseling treatments and medications recommended in this Guideline.

4. Brief tobacco dependence treatment is effective. Clinicians should offer every patient who uses tobacco at least the brief treatments shown to be effective in this Guideline.

5. Individual, group and telephone counseling are effective, and their effectiveness increases with treatment intensity. Two components of counseling are especially effective, and clinicians should use these when counseling patients making a quit attempt: Practical counseling (problem-solving/skills training) and social support delivered as part of
6. There are numerous effective medications for tobacco dependence and clinicians should encourage their use by all patients attempting to quit smoking, except when medically contraindicated or with specific populations for which there is insufficient evidence of effectiveness (i.e., pregnant women, smokeless tobacco users, light smokers and adolescents). Seven first-line medications (5 nicotine and 2 non-nicotine) reliably increase long-term smoking abstinence rates: Bupropion, SR Nicotine gum, Nicotine inhaler, Nicotine lozenge, Nicotine nasal spray, Nicotine patch, and Varenicline. Clinicians should also consider the use of certain combinations of medications identified as effective in this Guideline.

7. Counseling and medication are effective when used by themselves for treating tobacco dependence. However, the combination of counseling and medication is more effective than either alone. Thus,
clinicians should encourage all individuals making a quit attempt to use both counseling and medication.

8. Telephone quitline counseling is effective with diverse populations and has broad reach. Therefore, clinicians and healthcare delivery systems should both ensure patient access to quitlines and promote quitline use.

9. If a tobacco user is currently unwilling to make a quit attempt, clinicians should use the motivational treatments shown in this Guideline to be effective in increasing future quit attempts.

10. Tobacco dependence treatments are both clinically effective and highly cost-effective relative to interventions for other clinical disorders. Providing coverage for these treatments increases quit rates. Insurers and purchasers should ensure that all insurance plans include the counseling and medication identified as effective in this Guideline as covered benefits.”

(Fiore et al., 2008)

<p>| 12 | U.S. Preventive Clinical Guideline | Applies to adults 18 and | 1. | 5 As useful strategy – ask all adults about tobacco use | 1. | No update since 2015 | Level IVA |</p>
<table>
<thead>
<tr>
<th>Services Task Force 2015</th>
<th>U.S. Preventive Services Task Force</th>
<th>older including pregnant women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. Provide behavior interventions and pharmacotherapy if no contraindication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Insufficient evidence to recommend electronic nicotine delivery systems for tobacco cessation in adults.</td>
</tr>
</tbody>
</table>
Appendix B
Adaptation of the Plan, Do Study, Act Cycle

Appendix C

Recruitment Flyer

RUTGERS

A Research Study for Cigarette Smokers

The Refer-for-Life Study

To evaluate how education about resources affects smokers’ plans.

Who can participate:
Those age 18 and over
Have smoked cigarettes in the last week
(Other criteria apply)

What does the study involve?
Filling out a survey.
Discussing your smoking, and learning about referral options.
Answering a brief telephone survey 2-3 weeks later.
Total time approximately 30 minutes.

What else do I need to know?
Your information will be kept confidential.
You will receive educational materials.

Participants receive a $10 Amazon® Gift card after completion of telephone survey.

For information about the research study, “Refer-for-Life,” contact: Julie Cargile, principal investigator
Location of research: [location]

V1 6/15/2019
CONSENT TO TAKE PART IN A RESEARCH STUDY

**TITLE OF STUDY:** Refer-for-Life  
**Principal Investigator:** Irina Benenson DNP, FNP-C, CEN

**STUDY SUMMARY:** This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want to take part in this study. It is your choice to take part or not. The purpose of the research is to: assess how education about resources effects smokers’ quitting plans. If you take part in the research, you will be asked to complete four questionnaires, be educated about benefits of quitting smoking, be educated about quit-smoking resources, and complete another questionnaire. In two to three weeks, the co-investigator will try to reach you by telephone to complete another questionnaire. Your time in the study will take 10 minutes to complete the first questionnaires and second questionnaires, 5 minutes for the education, and 5 minutes for the follow-up phone call. Possible harms or burdens of taking part in the study may be discomfort at the thought of quitting smoking. If you decide to quit smoking during the study period, you may experience withdrawal symptoms. Withdrawal symptoms include feeling irritable, feeling sad, craving cigarettes, trouble sleeping, trouble concentrating, feeling restless, feeling hungry and having a slower heart rate. The possible benefits of taking part may be increasing your understanding about the benefits of quitting smoking and the resources available to help you quit smoking. Quitting smoking can decrease some risks to your health. An alternative to taking part in the research study is to contact the New Jersey Quitline on your own or contact your health professional about your smoking-cessation options. Another alternative to taking part in the research study is not to take part in it.

The information in this consent form will provide more details about the research study and what will be asked of you if you choose to take part in it. If you have any questions now or during the study, if you choose to take part, you should feel free to ask them and should expect to be given answers you completely understand. After all of your questions have been answered and you wish to take part in the research study, you will be asked to sign this consent form. You are not giving up any of your legal rights by agreeing to take part in this research or by signing this consent form.

**Who is conducting this research study?**  
Julie Cargille is the co-investigator for this research study. Dr. Irina Benenson is the Principal Investigator for this study. A Principal Investigator has the overall responsibility for the conduct of the research. However, there are often other individuals who are part of the research team.

Irina Benenson may be reached at [Contact Information]  
Julie Cargille may be reached at [Contact Information]

The Principal investigator or another member of the study team will also be asked to sign this informed consent. You will be given a copy of the signed consent form to keep.
Why is this study being done?
The study is being completed to see if a short educational session increases smokers’ desire and plan to quit smoking. It will also see if the educational session increases how many smokers seek help for quitting smoking and what method of help they choose.

Who may take part in this study and who may not?
People who are 18-years-old or older who have smoked cigarettes in the last 7 days may take part in this study. Women who are pregnant may not take part in this study.

Why have I been asked to take part in this study?
You have been asked to take part in this study because you stated that you smoke cigarettes.

How long will the study take and how many subjects will take part?
Twenty-five to thirty-five people will take part in this study. The study will last 11 weeks.

What will I be asked to do if I take part in this study?
First you will be asked to answer questionnaires. One questionnaire will ask information about your name, date of birth, email, and phone number. Another questionnaire will ask you about your smoking history. Other questionnaires will ask you about any plans you have to quit smoking.

Next the co-investigator will give you information about the benefits of quitting smoking. She will also give you information about resources to help you quit smoking including a referral line, websites, mobile apps, and a local Quit Center. You will be again asked to fill out a questionnaire about any plans you have to quit smoking. You may choose after that to have a referral form sent to the NJ Quitline.

Two to three weeks later, the co-investigator will try to reach you by telephone. She will make three attempts to reach you. If you speak with her, she will ask you a short survey.

What are the risks and/or discomforts I might experience if I take part in this study?
The risks to this study are minimal. You may feel uncomfortable disclosing your smoking history. You may feel uncomfortable if you think about quitting smoking. If you decide to quit smoking during the study period, you may experience withdrawal symptoms. Withdrawal symptoms include feeling irritable, feeling sad, craving cigarettes, trouble sleeping, trouble concentrating, feeling restless, feeling hungry and having a slower heart rate.

Are there any benefits to me if I choose to take part in this study?
The benefits of taking part in this study may be increasing your understanding about the benefits of quitting smoking and the resources available to help you quit smoking. Learning about the benefits of smoking can increase the chance of you quitting smoking. Quitting smoking can decrease some risks to your health. However, it is possible that you may not receive any direct benefit from taking part in this study.

What are my alternatives if I do not want to take part in this study?
The following alternative treatments are available if you choose not to take part in this study:
You may contact the New Jersey Quitline on your own. You may discuss smoking-cessation
options with your healthcare provider. You also have the option to not to take part in this study
or make any changes to your smoking.

How will I know if new information is learned that may affect whether I am willing to stay
in the study?
During the course of the study, you will be updated about any new information that may affect
whether you are willing to continue taking part in the study. If new information is learned that
may affect you after the study or your follow-up is completed, you will be contacted.

Will there be any cost to me to take part in this study?
There is no cost to you to participate in this study.

Will I be paid to take part in this study?
You will receive a $10 Amazon gift card for taking part of this study after the completion of the
questionnaire on the follow-up phone call. The gift card will be e mailed to you.

Who might benefit financially from this research?
There is no financial gain for Rutgers University, or the members involved in this project.

How will information about me be kept private or confidential?
All efforts will be made to keep your personal information in your research record confidential,
but total confidentiality cannot be guaranteed. All personal information will be kept on a
computer that will be password protected. The computer will be disabled from connecting to the
internet or other computers while the information is being stored on the computer. Only the co-
investigator will have access to the computer.

What will happen to my information collected for this research after the study is over?
  • The information collected about you for this research will not be used by or distributed to
    investigators for other research.

What will happen if I do not wish to take part in the study or if I later decide not to stay in
the study?
It is your choice whether to take part in the research. You may choose to take part, not to take
part or you may change your mind and withdraw from the study at any time.

If you do not want to enter the study or decide to stop taking part, your relationship with the
study staff will not change, and you may do so without penalty and without loss of benefits to
which you are otherwise entitled.

You may also withdraw your consent for the use of data already collected about you, but you
must do this in writing to Julie Cargille,  

If you decide to withdraw from the study for any reason, you may be asked to return for at least
one additional visit for safety reasons.
Who can I call if I have questions?
If you have questions about taking part in this study or if you feel you may have suffered a research related injury, you can call the study co-investigator: Julie Cargille, School of Nursing.

If you have questions about your rights as a research subject, you can call the IRB Director at: Newark Health Sciences IRB (973) 972-3608 or the Rutgers Human Subjects Protection Program at (973) 972-1149.

PERMISSION (Authorization) TO USE OR SHARE HEALTH INFORMATION THAT IDENTIFIES YOU FOR A RESEARCH STUDY

The next few paragraphs tell you about how investigators want to use and share identifiable health information from your medical record in this research. Your information will only be used as described here or as allowed or required by law. If you sign this consent form, you agree to let the investigators use your identifiable health information in the research and share it with others as described below. Ask questions if there is something you do not understand.

What is the purpose of the research and how will my information be used?
You are being invited to take part in this research study which is described at the beginning of this form. The purpose of collecting and using your health information for this study is to help investigators answer the questions that are being asked in the research.

What information about me will be used?
- Smoking status

Who may use, share or receive my information?
The research team may use or share your information collected or created for this study with the following people and institutions:
- Rutgers University investigators involved in the study;
- University Hospital or Robert Wood University Hospital personnel to communicate information necessary for health care operations;
- The Rutgers University Institutional Review Board and Compliance Boards
- The Office for Human Research Protections in the U.S. Dept. of Health and Human Services

If you sign an additional consent form, your name and contact information will be sent to the New Jersey Quitline.

Those persons or organizations that receive your information may not be required by Federal privacy laws to protect it and may share your information with others without your permission, if permitted by the laws governing them.

Will I be able to review my research record while the research is ongoing?
No. We are not able to share information in the research records with you until the study is over. To ask for this information, please contact the Principal Investigator, the person in charge of this research study.
Do I have to give my permission?
No. You do not have to permit use of your information. But, if you do not give permission, you cannot take part in this study. (Saying no does not stop you from getting medical care or other benefits you are eligible for outside of this study.)

If I say yes now, can I change my mind and take away my permission later?
Yes. You may change your mind and not allow the continued use of your information (and to stop taking part in the study) at any time. If you take away permission, your information will no longer be used or shared in the study, but we will not be able to take back information that has already been used or shared with others. If you say yes now but change your mind later for use of your information in the research, you must write to the researcher and tell him or her of your decision: Julie Cargille, [Contact Information]

How long will my permission last?
Your permission for the use and sharing of your health information will last until the end of the research study.
AGREEMENT TO PARTICIPATE

1. Subject consent:

I have read this entire consent form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form and this study have been answered. I agree to take part in this study.

Subject Name: ____________________________________________

Subject Signature: ___________________________ Date: ____________

2. Signature of Investigator/Individual Obtaining Consent:

To the best of my ability, I have explained and discussed all the important details about the study including all of the information contained in this consent form.

Investigator/Person Obtaining Consent (printed name): ______________________

Signature: ___________________________ Date: ____________
Appendix E

Consent for Referral

New Jersey Quitline
1-866-NJ-STOPS (1-866-557-8677)

Refer-to-Quit (Referral Form)
Fax form to: 1-866-QUIT-FAX (1-866-784-8329)

Tobacco-Free
FOR A HEALTHY NEW JERSEY

Code: Special Programs Only

Step-by-Step:
• If a tobacco user would like help from the Quitline, complete form.
• Fax completed form to 1-866-794-8329.
• A Quitline Quit Coach will contact the tobacco user and offer free cessation services. A progress report will be sent to the provider listed on this form.
• The Quitline program is a free service for all New Jersey residents regardless of insurance status.

Tobacco Users: Complete This Section

(please print)

First Name ___________________________ Last Name ___________________________ Date of Birth _______ / _______ / _______

Mailing Address ___________________________ City _______ State _______ Zip Code _______

☐ Male ☐ Female

Gender ___________________________

Primary Phone (area code + number) ___________________________

Secondary Phone (area code + number) ___________________________

E-mail Address: ___________________________

When should we call? Morning Afternoon Evening No preference May we leave a message? Yes No

Language Preference: English Spanish Other (specify) ___________________________

I (undersigned) give permission for the support staff of the New Jersey Quitline to contact me, coach me in quitting smoking, and give feedback regarding my progress to the provider/employer listed below and permission for that provider/employer to forward the information to other relevant providers.

________________________________________

Required: Tobacco User’s Signature (or agent if authorization was verbal) ___________________________

Date ___________________________

Health Providers/Employer/Other: Complete This Section

Reference: ___________________________

Phone number: ___________________________

Facility: ___________________________

Fax number: ___________________________

Address: ___________________________

City _______ State _______ Zip _______

E-mail address: ___________________________

SEND PROGRESS REPORT VIA SECURED: Secured Site Access E-mail (Secured Attachment) Fax (Provider Secured) DO NOT SEND PROGRESS REPORT (If this section is not indicated, no progress report will be available)

Send Progress Report to: Same as above or ___________________________

Name ___________________________

Phone number: ___________________________

Facility ___________________________

Fax number: ___________________________

E-mail address: ___________________________

PEDIATRICS ONLY: Tobacco Users’ relationship to child: Mother Father Other (specify) ___________________________

Child/Children’s name: (to help with recordkeeping) ___________________________
Appendix G

Demographic Form

Name: ___________________________ Participant number: ________________

Email Address: ___________________________________________________________

Telephone number for follow-up call: ________________________________

May I leave a message on this number: YES NO
## Appendix G

Smoking History Questionnaire

<table>
<thead>
<tr>
<th>Smoking History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthdate: ___________________</td>
</tr>
<tr>
<td>What gender do you identify with:</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Level of education:</td>
</tr>
<tr>
<td>Less than high school</td>
</tr>
<tr>
<td>At what age did you start smoking: _________________</td>
</tr>
<tr>
<td>How many cigarettes/vaporizers do you use a day? _________________</td>
</tr>
<tr>
<td>Have you contacted a smoking quitline in the last year? Yes</td>
</tr>
<tr>
<td>Have you used any smoking quitting resources like a phone app, text to quit, website or a Quit Center? Yes</td>
</tr>
<tr>
<td>If yes what did you use: ____________________________</td>
</tr>
<tr>
<td>Have you attempted to quit smoking for more than a day in the last year? Yes</td>
</tr>
<tr>
<td>If you attempted to quit in the last year, how many times did you attempt to quit? ______</td>
</tr>
<tr>
<td>If you attempted to quit in the last year, how long was the longest time you went without smoking? ______________________</td>
</tr>
</tbody>
</table>

V1 4/24/2019
Appendix H

Cigarette Dependence Scale

Please answer each question:

1. Please rate your addiction to cigarettes on a scale of 0 to 100:
   - I am NOT addicted to cigarettes at all = 0
   - I am extremely addicted to cigarettes = 100

2. On average, how many cigarettes do you smoke per day?

3. Usually, how soon after waking up do you smoke your first cigarette?

4. For you, quitting smoking for good would be:
   - Impossible
   - Very difficult
   - Fairly difficult
   - Fairly easy
   - Very easy

Please indicate whether you agree with the following statement:
5. After a few hours without smoking, I feel an irresistible urge to smoke
   - Totally disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat agree
   - Fully agree
Appendix I

Intention to Quit and Seek Help Questionnaire

![Rutgers School of Nursing](https://example.com/)

**ITTQ and ITTSHQ Questionnaire**

For the next 6 questions please circle how likely it is that you will do each item.

<table>
<thead>
<tr>
<th>How likely is it that in the next 3 months you will:</th>
<th>Definitely will not</th>
<th>Definitely will</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quit smoking completely and permanently?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Reduce the number of cigarettes you smoke in a day?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Talk to someone (friend, family member, spouse) about quitting smoking</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Seek counseling/support to help you quit smoking?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Enroll in a smoking cessation program if one were available to you at minimal cost and easy access?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>


http://search.proquest.com/docview/1835542007/
Appendix J

Permission from Dr. Etter to Use CDS-5 and CDS-12

Dear Dr. Etter,

I am a graduate student at Rutgers University in New Jersey, USA. I am completing a project that evaluates a brief intervention to connect smokers to cessation resources. I would like to use the CDS-12 as part of my project or possible the CDS-5. Do I have permission to use the CDS-12 or CDS-5 for my project?

Thank you for your time,

Julie Cargille, BSN, RN
Appendix K

Permission from Dr. Wong and Dr. Cappella to Use ITQS and ITSHQS

Re: Permission to use questionnaires

Julie,

Yes, I’m good with you using both sets of items as well.

Best,
Norman

Sent from my iPhone

On Apr 8, 2019, at 5:08 AM,

Yes no problem Julie. Norman, any concerns?
Cheers JNC

From Julie Cargille
Sent Sunday, April 7, 2019 10:19 PM
To: [blacked out]
Subject: Permission to use questionnaires

Dear Dr. Wong and Dr. Capella,

I am a graduate student at Rutgers University. I will be completing a project on the effectiveness of a short intervention to connect smokers to cessation resources. I would like to use your “Intent to Quit Smoking” and “Intentions to Seek Help Quitting Smoking” questionnaires. May I have permission to use them for this project?

Julie Cargille, BSN, RN
Appendix L

Educational Dialogue

1. “There is no safe level of exposure to tobacco smoke” (DHHS
   a. Any exposure to tobacco smoke is harmful (DHHS)
2. “Damage from tobacco smoke is immediate”, (DHHS,
   a. 7000 chemicals
      i. Damage DNA
   b. Lead to cancer
      i. “Nearly 1/3 of all cancer deaths are directly linked to smoking” (DHHS
   c. Damage blood vessels and cause clotting
      i. Can cause heart attacks and strokes
   d. Damage lungs
      i. Can cause asthma attacks, emphysema, and chronic bronchitis (DHHS
3. Quitting smoking leads to immediate health benefits.
   a. 72 hours breathing is easier and bronchial tubes begin to relax (NJDOH, 2011)
   b. 2-12 weeks circulation improves (NJDOH, 2011)
   c. 3-9 months lung function improves up to 10% (NJDOH, 2011)
      i. Coughing, wheezing, breathings problems reduced
   d. “1-year heart attack risk decreases by 50%” (NJDOH, 2011)
   e. “10 years Lung cancer risk decreases by 50%” (NJDOH, 2011)
   f. “15 years Heart attack risk same as someone who never smoked” (NJDOH, 2011)
4. Most smokers quit without help, but using resources increase your chance of quitting
   (CDC, 2017)
   a. Brief help from a healthcare provider – information like this (CDC, 2017)
   b. Individual, group or telephone counseling (CDC, 2017)
   c. Behavioral therapies such as problem solving (CDC, 2017)
   d. Treatment with more contact and sessions (CDC, 2017)
   e. Programs to deliver treatment that use mobile phones (CDC, 2017)
   f. Medications help (CDC, 2017)
5. There are resources available that increase your chances of quitting
Appendix M

Handouts for Participants – 7000 Chemicals

7000 Chemicals are found in cigarette smoke!

- Cadmium**
- Carbon dioxide
- Carbon monoxide [Auto exhaust poison]
- Carbonyl sulfide
- Catechol [Tanning, dyeing agent]
- Cholesterol
- Dimethyamine [Tanning accelerator]
- Formaldehyde** [Embalmng fluid]
- Formic acid [Caustic solvent]
- Glycolic acid [Metal cleaning agent]
- Harman
- Hydrazine [Rocket fuel chemical]
- Hydrogen cyanide [Rat/insect poison]
- Hydroquinone [Developing agent]
- Lactic acid [Caustic solvent]
- Methyl chloride [Refrigerant]
- Methylene [Tanning agent]
- Nickel*
- Nicotine [Insecticide]
- Nitrogen oxides
- N-Nitrosodimethylamine**
- N-Nitrosodimethylamine**
- N-Nitrosornicotine**
- N-Nitrosopyrrolidone**
- Particulate matter [Some ***]
- PCDDs and PCDFs [Dioxins, dibenzofurans]
- Phenol [Toilet disinfectant]
- Polonium-210* [Radioactive element]
- Pyridine [Solvent]
- Quinoline [Specimen preservative]

**Known human carcinogen
***Probable human carcinogen
****Animal carcinogen
Appendix N

Handouts for Participants – Beat Boredom

<table>
<thead>
<tr>
<th>Strategies to Beat Boredom while quitting smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the quitting process, it is important to stay busy and distracted, especially during the first days and weeks of quitting.</td>
</tr>
<tr>
<td>It is just as critical to begin changing your daily habits that went along with your smoking. Realize your triggers to smoke, so you can separate them and replace them with new smoke-free behaviors that will become delete your permanent habits.</td>
</tr>
<tr>
<td>Try to take-up your free time with non-smoking physical exercises, hobbies and activities that will keep your mind, body and hands busy. Reference a suggested list of ideas to help you to live the life of a non-smoker!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hobbies and Crafts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bird watching</td>
</tr>
<tr>
<td>Cake decorating</td>
</tr>
<tr>
<td>Calligraphy</td>
</tr>
<tr>
<td>Genealogy</td>
</tr>
<tr>
<td>Model building (airplane, car, boat...)</td>
</tr>
<tr>
<td>Paint using watercolors, tempera, oil paints, acrylics, etc.</td>
</tr>
<tr>
<td>Photography</td>
</tr>
<tr>
<td>Scrapbooking</td>
</tr>
<tr>
<td>Knit, crochet, cross-stitch, embroidery, sew, etc.</td>
</tr>
<tr>
<td>Woodworking</td>
</tr>
<tr>
<td>Play an instrument</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Games</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card games</td>
</tr>
<tr>
<td>Board games</td>
</tr>
<tr>
<td>Darts</td>
</tr>
<tr>
<td>Handheld, travel games and apps.</td>
</tr>
<tr>
<td>Join a league: bowling, softball, volleyball etc.</td>
</tr>
<tr>
<td>Logic problems &amp; puzzles (i.e. Sudoku, crosswords)</td>
</tr>
<tr>
<td>Play pool</td>
</tr>
<tr>
<td>Video games</td>
</tr>
<tr>
<td>Word games</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Take Action...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
</tr>
<tr>
<td>Clean out &amp; re-organize your home</td>
</tr>
<tr>
<td>Cook &amp; experiment with new recipes</td>
</tr>
<tr>
<td>Dance</td>
</tr>
<tr>
<td>Garden</td>
</tr>
<tr>
<td>Learn tai chi or yoga</td>
</tr>
<tr>
<td>Play with your pet</td>
</tr>
<tr>
<td>Play sports</td>
</tr>
<tr>
<td>Ride a bike, roller blade or roller skate</td>
</tr>
</tbody>
</table>
### Stop Smoking Medications “At A Glance” Chart

- Speak with your Doctor or healthcare professional about which stop smoking medication is right for you.
- Most insurance plans including Medicaid and Medicare cover some or all stop smoking medications. Check with your plan.
- Studies have shown you may have an increase in quitting success over using the patch alone, by combining the patch with the gum or lozenge. Talk with your doctor or healthcare provider to see what may work best for you. The use of any combined Nicotine Replacement Therapy (NRT) or prescription medication should be under the supervision of your doctor or healthcare provider.
- Stop smoking medication discount cards are available for all New Jersey residents. Check out [www.newjerseydrugcard.com](http://www.newjerseydrugcard.com), (tollfree) 1-877-233-3866 or (local) 1-917-715-1560 to see if you qualify. Remember to check for less expensive generic versions.

<table>
<thead>
<tr>
<th>Nicotine Patch</th>
<th>Nicotine Gum</th>
<th>Nicotine Lozenge</th>
<th>Nicotine Nasal Spray</th>
<th>Nicotine Inhaler</th>
<th>Zyban®</th>
<th>Chantix™</th>
</tr>
</thead>
<tbody>
<tr>
<td>-7mg, 14mg, 21mg.</td>
<td>-4mg - (25+ cigarettes/day).</td>
<td>-4mg - (25+ cigarettes/day).</td>
<td>- 1-2 doses per hour as needed.</td>
<td>- Use 6-16 cartridges per day for up to 6 months.</td>
<td>- Day 1-3: One 150mg tablet each morning.</td>
<td>- Day 1-3: 0.5mg tablet per day.</td>
</tr>
<tr>
<td>(Choice of 16 or 24-hour dosage. Taper from 4 weeks to every 2 weeks.</td>
<td>-2mg - (under 25 cigarettes/day).</td>
<td>-2mg - (under 25 cigarettes/day).</td>
<td>- Do not use more than 40 doses/day for 3-6 months.</td>
<td>- Day 4+: One 150mg tablet each morning and evening.</td>
<td>- Day 4+: One 150mg tablet each morning and evening.</td>
<td>- Day 4-7: 0.5mg tablet each morning and evening.</td>
</tr>
<tr>
<td></td>
<td>- Max: 24 pieces a day for up to 12 weeks.</td>
<td>- Max: 20 lozenges a day for up to 12 weeks.</td>
<td>- Max: 30 tablets a day for up to 12 weeks.</td>
<td></td>
<td>- Taped 4-6: One 150mg tablet each morning and evening.</td>
<td>- Taped 1-3 months.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pros</td>
<td>Easy to use.</td>
<td>Easy to control dose.</td>
<td>Easy to adjust doses.</td>
<td>Easy to use.</td>
<td>Easy to use.</td>
<td>Easy to use.</td>
</tr>
<tr>
<td></td>
<td>Once a day administration.</td>
<td>Once a day administration.</td>
<td>Once a day administration.</td>
<td>Once a day administration.</td>
<td>Once a day administration.</td>
<td>Once a day administration.</td>
</tr>
<tr>
<td></td>
<td>Provides a steady nicotine level.</td>
<td>Provides a steady nicotine level.</td>
<td>Provides a steady nicotine level.</td>
<td>Provides a steady nicotine level.</td>
<td>Provides a steady nicotine level.</td>
<td>Provides a steady nicotine level.</td>
</tr>
<tr>
<td>Cons</td>
<td>May be hard to use with dentures. Can damage dental work.</td>
<td>May cause hicups or heartburn. Need to use correctly.</td>
<td>May cause nasal irritation at first. May cause irritation of mouth and throat.</td>
<td>May cause nasal irritation at first. May cause irritation of mouth and throat.</td>
<td>May cause nasal irritation at first. May cause irritation of mouth and throat.</td>
<td>May cause nasal irritation at first. May cause irritation of mouth and throat.</td>
</tr>
<tr>
<td></td>
<td>No food or drink for 30 minutes before and during use.</td>
<td>No food or drink for 30 minutes before and during use.</td>
<td>No food or drink for 30 minutes before and during use.</td>
<td>No food or drink for 30 minutes before and during use.</td>
<td>No food or drink for 30 minutes before and during use.</td>
<td>No food or drink for 30 minutes before and during use.</td>
</tr>
<tr>
<td></td>
<td>Mouth soresness, jaw soresness or heartburn.</td>
<td>Mouth soresness, jaw soresness or heartburn.</td>
<td>Mouth soresness, jaw soresness or heartburn.</td>
<td>Mouth soresness, jaw soresness or heartburn.</td>
<td>Mouth soresness, jaw soresness or heartburn.</td>
<td>Mouth soresness, jaw soresness or heartburn.</td>
</tr>
</tbody>
</table>

---

**Handouts for Participants – Medication Chart**

[New Jersey Quitline](http://www.njquitline.org) - Deaf, Hard of Hearing and Speech Disabled: Call the N.J. Relay Service at 7-1-1 (Voice TTY), Give Quitline number: 1-866-657-8677.

This literature was developed by the Tobacco Control Program at Roswell Park Cancer Institute.
Appendix P

Handouts for Participants - Relapse

**NEW JERSEY QUITLINE**
1-866-NJ-STOPS

**Turn a relapse into something positive**
Nothing feels worse than starting to smoke again after quitting. This is called a relapse. Don't get discouraged! You can turn those feelings around and use the relapse to help you quit for good!

**How common are relapses?**
Relapses are normal. Most people experience relapses before quitting.

**How soon after quitting can I feel safe from the possibility of relapse?**
- Most relapses happen within the first 24 hours of quitting, but a relapse may happen after seven or even ninety days without tobacco.
- Less common, relapse can happen six months after quitting and at the anniversaries of one year, two years, five years and 11 years of being tobacco-free.

**How should I feel about a relapse?**
- Remember that quitting isn't easy! People who try to stop using tobacco are often harder on themselves. Go easy on yourself. Focus on starting to quit again.
- Remind yourself that relapses are part of the quitting process and think of every relapse as a learning opportunity.

**What can I learn from a relapse?**
Instead of focusing on your relapse, focus on what you can do differently to increase your chance of quitting for good. Look at what happened surrounding the relapse and try to learn:
- Why you smoked.
- What triggers caused you to light up.
- What situations caused you to want to smoke.
- How to be better prepared to turn down cigarettes.


This literature was developed by the Tobacco Control Program at Roswell Park Cancer Institute.
Appendix P

Handouts for Participants - Relapse

What can I do when I relapse?
Stop yourself as soon as you can. Remember a brief slip doesn’t have to become a full blown relapse. You can still get back on track quickly and take back control of your life.

- Destroy and throw away any cigarettes that are around you. Remove the temptation to smoke.
- Think about the reasons why you quit in the first place.
- If you are ready, set another Quit Date and congratulate yourself for trying again.
- If you don’t feel ready to quit, wait a few weeks. Look at and deal with the other issues that make you feel unable to quit.

Avoid another relapse?
Very few relapses occur because of withdrawal symptoms. Plan for triggers that lead to cravings, such as:
- Pleasant memories of using tobacco or being with tobacco users.
- Places or situations where you regularly used tobacco.
- A lot of stress.
- Times of self-pity, irritability, depression or anxiety.

Prepare for high-risk triggers like being hungry, angry, lonely or tired:
- Remembering the word “HALT” (hungry, angry, lonely, tired) can help you keep these times and feelings in mind.
- These are common relapse moments. Take care of yourself and satisfy these needs regularly.

Dominate tobacco cravings with the Five D’s:
- Learning to be tobacco-free is a lifelong process.
- Understanding how to cope with life, relationships and stress without tobacco is challenging, but knowing yourself and planning ahead will make relapses much easier to avoid.

When you feel the urge to smoke
REMEMBER THE 5 Ds
1. Delay
2. Drink Water
3. Do Something Else
4. Deep Breathe
5. Discuss With A Friend
Appendix Q

Handouts for Participants - Withdrawal

NEW JERSEY QUITLINE
1-866-NJ-STOPS

How to deal with nicotine withdrawal

Most people who are trying to stop smoking have some withdrawal symptoms, but usually do NOT have all that are listed below.

Moodiness/Worry
• Your body’s craving for nicotine may cause you to be moody.
• Irritability from nicotine withdrawal will stop in time, usually in 2 to 4 weeks.
• The nicotine patch, gum, or lozenge can help to ease the cravings and irritability.
• Tell your family and friends that this may be a tough time for you and that it’s only temporary.

Craving a cigarette
• Cravings for cigarettes usually happen during the first few days.
• Cravings usually only last a few minutes. They will pass.
• Cravings go away over time (2 to 3 weeks).
• Distract yourself. Do something other than smoke.
  Walk, talk with a friend, read a good book to help take your mind off of smoking.

Coughing / Clearing Your Throat / Dry Throat / Postnasal Drip
• Smokers’ bodies create extra mucous to help rid the body of the harmful chemicals in cigarettes.
• When you stop smoking, your body stops making extra mucous. You may need to cough or clear your throat.
• Coughing and other symptoms show that your body is healing itself. They will go away.
• Drinking water or having hard candy is one way to ease the coughing.

Insomnia (Sleepless Nights)
• Nicotine can change how deeply you sleep. This usually goes away in a few days.
• Dreaming about smoking is also common.
• Deep breathing, a hot bath before bed, or drinking decaf tea or warm milk may help.

Light-headed (Dizziness)
• Some dizziness is normal and will pass. This usually happens because your body is getting normal amounts of oxygen, and is repairing itself.

Use this information to help you with the symptoms you may have.

Don’t worry about those that you do not have.

Withdrawal is a normal outcome of quitting. It is a temporary sign that you are on the road to recovery.
Appendix R

Handout for Participants – Relax Without Lighting Up

Relax without lighting up

You may still want a cigarette whenever you start relaxing, especially if you have been smoking for years. It can be harder to unwind when you first stop smoking, so you might find yourself reaching for a cigarette—or thinking about it. PLANNING AHEAD FOR THESE TIMES IS KEY.

Addiction is not relaxing

- Nicotine is a stimulant. By quitting, at first you may miss the instant kick that cigarettes once gave you. This will naturally disappear in time.
- Nicotine replacement therapy can make you feel happy and less anxious, by taking the edge off withdrawal symptoms.

Anxiety will disappear

- Some notice higher anxiety within one week of quitting. They report feeling uneasy, worried, or troubled.
- If you feel anxious, it will usually begin within the first 24 hours after quitting and disappear within the month.

What can you do about it?

- Remember, you can relax without having a cigarette.
- Keep your hands active: sew, carve, do puzzles, play cards, etc.
- Make an extra effort to share your time with a friend, a child or pet.
- If the urge to smoke gets too strong, do something physical until the urge passes (walk, ride a bike, etc).
- Deep breathing is a good way to deal with tension almost anywhere and at any time.

It isn’t “just in your head”...cigarettes did make you feel relaxed as they relieved the anxiety of nicotine withdrawal. As your body recovers from nicotine dependence, this will get easier.


This literature was developed by the Tobacco Control Program at Roswell Park Cancer Institute
Appendix S

Handout for Participants – Stress

Deal with stress as a non-smoker

If you used cigarettes to help you deal with stress or negative moods, normal stressful situations that come up after you quit may give you the urge to smoke. Fortunately, non-smokers and former smokers have found many ways to deal with their stress or negative moods (boredom, anger, sadness, anxiety) without lighting a cigarette. You can, too!

Why does this happen?

- Tension, strain, worries, responsibilities, and hassles that you may have everyday can add to stress and can cause bad moods.
- Happy occasions like moving to a new home or getting married can also cause stress.
- When nicotine enters your brain, it appears to activate many powerful chemical reactions in the brain.
- These chemicals regulate mood, alertness, learning, memory, pleasure, anxiety and pain.
- When you smoke, the nicotine changes these chemicals. You may feel increased pleasure, less anxiety and more relaxed.

How common is this?

- Over years of smoking, your brain is trained to think that smoking is relaxing, because without nicotine you begin to feel nervous and anxious. Practice handling stress without smoking.
- Stress levels may be highest during the first two weeks after quitting and then taper off.
- During the first few weeks of quitting, even small stresses can lead to powerful urges to smoke.
- As time goes by the urges get weaker.

What can you do about it?

- Know what stressor or mood gives you the urge to smoke. Try to think of other ways you can cope with them (read, take a walk, talk with a friend).
- Know the cause of stress in your life (i.e. job, children, money).
- Know your stress signals (headaches, nervousness, or trouble sleeping).
- Create peaceful times in your everyday schedule. Set aside some time where you can get away from other people and your usual environment.
- Practice and picture yourself putting your relaxation plans to work. Put your plan into action. Change your plan as needed.
- Learn relaxation techniques such as meditation, yoga or deep breathing.
Appendix S

Handouts for Participants - Stress

During the first few weeks as a non-smoker
Plan for the following typically stressful situations:
- A bad day at work.
- A problem with your kids.
- An argument with your spouse or partner.
- A traffic ticket.
- A minor fender-bender.

After several weeks as a non-smoker
Plan what you will do if faced with stressful situations:
- Ask for support from a friend or loved one.
- Try not to use the situation as an excuse to smoke.

Take strong actions when faced with the strong desire to smoke
- Leave the situation
- Call a friend
- Take deep breaths
- Go for a walk
- Exercise
- Chew gum
- Use the 5Ds (left)

Make a mental “note to self”
- Remind yourself of the reasons you quit smoking.
- Remember, you don’t need tobacco to get through it.
- Smoking will not solve the problem.
- Remember how far you have come. Tell yourself not to let your efforts go to waste.

Take a one-minute vacation
The one-minute vacation. You can do almost anywhere, here’s how:
1. Close your eyes.
2. Take a deep, slow breath through your nose. As you inhale, picture yourself in a favorite spot.
3. Exhale slowly through your mouth, holding that scene in your mind.
4. Enjoy the pleasure of that scene.
5. Open your eyes and feel refreshed.
### Appendix T

Handouts for Participants – Triggers

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Not Strong</th>
<th>Somewhat</th>
<th>Strong</th>
<th>Do Instead of Smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I first wake up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With coffee</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After breakfast</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Home/Office</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between tasks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>About to start a new project</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After a long meeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With smoking buddies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Out on the Town</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the car</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out with friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After a meal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parties or social events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching or playing sports</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Evening at Home</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Going home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After dinner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxing (watching TV/reading)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talking on the phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At the computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just before bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Emotions/Feelings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need a pick me up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celebrate a win/congratulate myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After an argument/confrontation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To relax or unwind</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boredom/killing time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling Blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other (Write your own)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix T

Handouts for Participants - Triggers

**Triggers - Lighting Up on Auto Pilot!**

**What are “triggers”?**
Do you smoke when you drink coffee, drive, talk on the phone, or when you feel stressed? It is common to want to light up during these activities or when you experience these feelings because they are smoking triggers.

**Everyday activities can be connected to smoking**
- A pack-a-day smoker takes 200 cigarette puffs every day. Repeated smoking connects daily habits with smoking.
- Everyday activities like driving, finishing a meal, taking a break, or stress can become a "trigger" to light up.

**Time to tame your triggers**
- Break your habit by changing the way you go about your daily activities. Begin to break up your smoking triggers to avoid smoking.

**How to tame your triggers!**
- Drink coffee where you can’t smoke, talk on your phone in a public place, drive a different route or a car-pool with non-smokers. For more great ideas visit [www.njquitline.com](http://www.njquitline.com).

**Find out what your triggers are. Take steps to break them**
- Chart your triggers using the form on the back of this page.
- Check off how strong they are for you.
- Change how you handle triggers that are somewhat strong or strong.
- Call the Quitline for support during tough times.

1-866-NJ-STOPs (1-866-657-8677)
Appendix U

Intent to Quit Smoking and Intent to Seek Help to Quit Smoking Form

For the next 6 questions how likely it is that you will do each item on a scale of 1 to 4 with 1 being definitely will not and 4 being definitely will

<table>
<thead>
<tr>
<th>How likely is it that in the next 3 months you will:</th>
<th>Definitely will not</th>
<th>Definitely will</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quit smoking completely and permanently?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Reduce the number of cigarettes you smoke in a day?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Talk to someone (friend, family member, spouse) about quitting smoking</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Seek counseling/support to help you quit smoking?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Enroll in a smoking cessation program if one were available to you at minimal cost and easy access?</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix V

Two Week Follow-up

Two Week Follow-up Questionnaire

Have you contacted a smoking Quitline in the two weeks? Yes No

If so which one? ______________________________________

In the last two weeks did you use:

  A smoking cessation website: YES NO

  Smoking cessation phone app: YES NO

  Text to quit: YES NO

    Which one? __________ —

  Contacted a Quit center: YES NO

Have you attempted to quit smoking for more than a day in the last two weeks?

   Yes           No           How many times: __________

If you attempted to quit in the two weeks, how long was the longest time you went without
smoking? ____________________________________________
# Appendix W

## Project Timeline

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation of proposal to team</td>
<td>May-19</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRB submission</td>
<td>Aug-19</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant recruitment</td>
<td>Jan-20</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project implementation (education)</td>
<td>Jan-20</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data collection</td>
<td>Nov-19</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data analysis</td>
<td>Mar-20</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation and writing</td>
<td>Mar-20</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation of final project</td>
<td>Apr-20</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduation</td>
<td>May-20</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix X

#### Budget

<table>
<thead>
<tr>
<th>Expense</th>
<th>Cost</th>
<th>Total Cost (in dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment Posters</td>
<td>$75</td>
<td>75</td>
</tr>
<tr>
<td>Educational Materials</td>
<td>30 @ $4</td>
<td>120</td>
</tr>
<tr>
<td>Amazon® Gift Cards</td>
<td>1 @$10</td>
<td>10</td>
</tr>
<tr>
<td>Statistics software</td>
<td>$89</td>
<td>89</td>
</tr>
<tr>
<td>Dissemination Posters</td>
<td>$75</td>
<td>75</td>
</tr>
</tbody>
</table>

**TOTAL BUDGET** 369