

## TITLE:

A Pharmacist Facilitated Smoking Cessation Program

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## SOURCES OF SUPPORT:

This project was supported by grants from American Pharmacists Association Foundation, Boehringer Ingelheim Pharmaceuticals, Inc, and Community Pharmacy Foundation.

## ACKNOWLEDGEMENTS:

We acknowledge Bedfont Scientific, USA, for the generous loan of the EC50-Micro III Carbon Monoxide Monitor. We acknowledge the assistance of Tom Dowling, PharmD, PhD, assistant professor of the University of Maryland, School of Pharmacy, for developing the sample plan and the aid in IRB preparation and Christopher Blanchett, MA, graduate student of the University of Maryland, School of Pharmacy, for guidance with statistical analysis. *Portions of this study were presented at the 2004 Annual American Pharmacists Association meeting, held in Seattle, Washington.*

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## ABSTRACT

*Title:* A Pharmacist Facilitated Smoking Cessation Program *Objectives:* To assess the effectiveness of a pharmacist managed smoking cessation program on patients' ability to remain smoke-free after quitting and to assess patients' knowledge about smoking consequences and treatment. *Design:* A single center, prospective, pilot study. *Setting:* CVS Health Connection Center, in Washington, DC. *Participants:* Five patients who were customers of CVS/pharmacy store, participants of clinical services of the Center, or patients of local doctor offices. *Interventions:* Patients scheduled appointments with the pharmacy resident for a total of six appointments and follow-up over a 14-week period. The resident provided education, behavior modifications, and clinical assessment for each patient. Monitoring parameters assessed at every visit. Every patient received behavioral modifications, with possible utilization of pharmacotherapy. *Main Outcome Measures:* Change in baseline of monitoring parameters, patient education scores at the beginning and end of the program, self-reported smoking status, and patient satisfaction surveys. *Results:* No significant difference from baseline to completion of the program in monitoring parameters. Patient education test scores improved from 71% to 96% at the end of the program. Per self-reporting, three out of five patients were abstinent at the three-month follow-up from quit date. *Conclusion:* Although patient enrollment was low due to readiness to quit, the patient satisfaction surveys indicated a community pharmacy setting is an accessible place for patients to attend a smoking cessation program. Furthermore, pharmacists have the ability to address smoking status and to help motivate patients to be smoke-free.

*Keywords:* Smoking cessation, tobacco abuse, prevention program, community pharmacy, smoke-free management, carbon monoxide, transtheoretical model.

## *Introduction*

Tobacco abuse is the single most preventable cause of illness and death in the United States<sup>1</sup>. Smoking contributes to a wide range of diseases, including different types of cancers, chronic obstructive pulmonary disease, coronary heart disease, stroke, and peptic ulcer disease. Cigarette smoke contains approximately 4000 compounds, of which 43 are known to cause cancer. It is estimated that 430,000 people die annually and approximately \$89 billion is spent each year on smoking related illnesses<sup>2</sup>. Currently, there are approximately 50 million adult smokers in the United States<sup>3</sup>. Many of the health related effects of tobacco use can be reversed over time, such as improvement in taste, smell, and lung function<sup>1</sup>. The greatest immediate benefit of smoking cessation is the reduction of cardiovascular risk. In addition, there is a reduction in the risk of respiratory infections. These reductions in risk have been seen within 3 to 5 years after quitting smoking<sup>4</sup>. Long term benefits associated with smoking cessation include the reduction in risk for stroke and cancer. It has been well demonstrated that smoking cessation prevents the occurrence of these illnesses and produces cost saving benefits.

Healthy People 2010 ([www.healthypeople.gov](http://www.healthypeople.gov)) derived a list of objectives for healthcare providers to focus on improvements in patients' health and overall life<sup>5,6</sup>. One of the objectives listed is to improve smoking cessation rates. This publication clearly states that pharmacist can play a very important role in smoking cessation by asking patients about smoking habits and assessing the patient's willingness to quit. The US Public Health Service's Clinical Practice Guideline *Treating Tobacco Use and Dependence* indicate that non-physician clinicians are more successful at smoking cessation rates than physicians<sup>7</sup>. However, the guidelines also state that more research needs to be conducted to measure the effectiveness of a pharmacist-managed smoking cessation program. Furthermore, many professional pharmacy organizations have urged pharmacists to advocate smoking cessation<sup>8-10</sup>. In 1999 the American Society of Health-System Pharmacists issued a position statement to encourage pharmacist to promote smoking cessation and to help patient through the quitting process<sup>8</sup>. The American Pharmacist Association has published several articles in the *Journal of American Pharmacist Association* and *Pharmacy Today* encouraging pharmacists to help patients successfully become smoke-free<sup>9,10</sup>.

Smoking cessation medications, both prescription and nonprescription, are available and accessible to pharmacists within a community pharmacy setting. Not only are the products accessible, but pharmacists are knowledgeable about drug therapies, including nicotine replacement products and other medications used for smoking cessation. In

addition, pharmacists are in a position to ask patients about potential smoking habits and confront patients about making a change. Knowing the patient's smoking status can play an important role in determining and preventing drug interactions. In addition, it can provide an introduction to the topic for the pharmacist to encourage the patient to enroll or motivate the individual to quit smoking.

A 2002 survey evaluated pharmacists' views on smoking cessation services in Iowa community pharmacies<sup>11</sup>. The authors obtained 129 of the 338 surveys randomly distributed to Iowa pharmacists to perform chi-squared analyses. Ninety-nine percent of the pharmacists responding to the survey indicated that it is important for pharmacists to provide smoking cessation counseling. The survey also indicated that pharmacists felt they were somewhat knowledgeable and prepared to provide counseling for smoking cessation. Many of the barriers reported in the survey include inability to identify patients who smoke, lack of reimbursement for smoking cessation counseling, low patient demand for counseling, and pharmacists not having printed education material to give to the patients. The authors conclude that pharmacists are ready to implement smoking cessation programs within community pharmacy setting. However, models to help in the implementation of pharmacist facilitated smoking cessation programs are not available. In addition, pharmacist facilitated programs seem feasible and the effectiveness of such programs need to be examined.

The pilot study presented here examines the feasibility of a pharmacist facilitated smoking cessation program and outlines the successes of a new program within a Washington, DC pharmacy.

### *Objectives*

The purpose of this community pharmacy project was to design, implement, and evaluate a smoking cessation program in a chain pharmacy in the Washington, DC area. The objectives were to assess the effectiveness of a pharmacist managed smoking cessation program on patients' ability to remain smoke-free after quitting and to assess patients' knowledge about smoking consequences and treatment. The hypothesis being tested is that it is feasible to implement a smoking cessation program within a community pharmacy setting and pharmacists are able to successfully help guide and educate patients through the quitting process.

## **Methods**

### **Setting**

The project was a single center, prospective, pilot implementation study, conducted at the CVS Health Connection Center, in northwest Washington, DC. The center is located within a CVS/pharmacy store, separate from the pharmacy, and is equipped with a patient education room, two smaller offices for personal one-on-one appointments, a reference library, and a CLIA-certified laboratory. The center offers current health information, monitoring services, wellness classes, and referrals to local health resources. Current clinical services established at this site include a diabetes education program, recognized by the American Diabetes Association and wellness programs focusing on obesity, hypertension, dyslipidemia, heart and stroke prevention, and asthma management. The center is a multidisciplinary site located in an urban setting, comprised of pharmacists, a dietician and a registered nurse educator. The center serves a predominately elderly, African American population.

### **Recruitment & Enrollment**

Patients were recruited by various means, including flyers located near and around the pharmacy and the store. Mailings were sent to local CVS/pharmacies, advertising the program and describing the services to be provided. Physician detailing at targeted physician offices took place to help increase patient enrollment. A coupon voucher system was used for patients enrolling in the research program. In addition, the program was advertised through the *Circle of Friends* support system, a program joining together people and organizations to support smokers in becoming smoke-free.

Over 250 people inquired or were approached about the smoking cessation program offered at the center. Customers' willingness to quit was determined using the transtheoretical model of behavioral change (pre-contemplation, contemplation, preparation, action, and maintenance)<sup>12,13</sup>. However, most customers were either in the pre-contemplation or contemplation stage. The patients realized that smoking utilization was changing around them, such as smoke-free restaurants and bars, or understood that they needed to quit smoking based on health consequences. However, despite this knowledge, most individuals were not willing to quit at this time. Once individuals were motivated enough to enroll into the program, patients were further screened to determine patient eligibility for the research project (see Table 1).

## **Program design**

The project was designed to aid in smoking cessation through behavioral modifications and possible utilization of pharmacotherapy. The facilitator, a community pharmacy practice resident, was trained by the American Lung Association "Freedom from Smoking" program. Procedures were developed defining roles and responsibilities for implementation of behavioral modifications and pharmacotherapy selection per the tobacco dependence guidelines<sup>7</sup>, the American Lung Association<sup>2</sup>, the University of Pittsburgh smoking cessation program<sup>14</sup>, and the use of past research articles examining the implementation of a smoking cessation program in a community pharmacy setting<sup>13,15,16</sup>. Implementation and enrollment of patients in the program began after the University of Maryland's IRB approval.

The program was composed of 6 sessions followed by a 3-month follow-up session. The first 3 sessions consisted of one-on-one appointments with the pharmacist. Sessions 4-6 were held as group sessions. The 3-month follow-up from quit date could either be an individualized or group appointment, depending the number of patients having the same or similar quit dates. The 3 individual sessions were scheduled at patient's convenience. The time allowed for individual sessions ranged from 30 to 60 minutes. Group sessions met at scheduled times throughout the month over a one hour period. Once the patient completed the 6 session classes, an exit interview was preformed three months from the quit date. The 3-month follow-up lasted 30 minutes. At every session and at 3-month follow-up, the following monitoring parameters were collected: blood pressure, pulse, weight, adverse drug reaction evaluation (once medication has been initiated), cardiovascular risk/symptoms, nicotine withdrawal symptoms, and carbon monoxide levels via the EC50 Micro-III carbon monoxide machine (Bedfont Scientific, Inc)<sup>17</sup>.

At each session, patients received education material to help motivate and implement behavioral modifications. The estimated duration of the program was 14 weeks for every patient (beginning two weeks prior to quit date, ending 12 weeks after quitting). The patient's primary care physician was informed of the patient's enrollment and completion of the program. In addition, if pharmacotherapy was utilized, the physician was contacted for prescription authorization. Counseling, including adverse side effects and proper administration techniques, was provided to every patient taking medications for smoking cessation. Throughout the study, patients were closely monitored for relapse, adverse reactions to any medications, compliance, and cardiovascular risk.

### **Session 1: Initial Consult**

The initial consult was an individual appointment, lasting 60 minutes for every patient. During this session the patient's consent was obtained for participation and for collaboration efforts with the patient's primary care physician. An assessment of the patient's willingness to quit, based on the transtheoretical model<sup>12,13</sup>, and Fagerström test for nicotine dependence<sup>18</sup> was performed to help determine how motivated the patient is to quit smoking and estimate how addicted the individual is to nicotine. Both the determination of nicotine dependence and the willingness to quit can be done by asking a series of questions (see Table 2).

A quit date was set 1-2 weeks from initial consult if patient was in the preparation stage of the transtheoretical model and 3-4 weeks from initial consult if patient was in the contemplation stage. If in the contemplation stage, the patient would receive periodic phone calls to help motivate and prepare the patient for the quit date. Behavior modifications were provided based on the patient's current knowledge of smoking habits. Pharmacotherapy utilization was discussed and determined by the pharmacist and patient, with final approval by a primary care physician. Discussions of previous quit attempts were also used to help implement behavior modifications and selection of pharmacotherapy. Every patient received a smoking diary, were instructed on how to use it, and asked to complete a daily smoking diary until the next visit. The importance of the smoking diary was to aid in behavioral modifications and to help determine smoking patterns. Monitoring parameters were assessed. In addition, the patient received written education material about information discussed in session 1.

### **Session 2: The Quit Date**

Sixty minutes was allotted for this individualized session. The appointment was scheduled on the actual quit date set by the patient. Evaluation of the smoking diary was utilized to aid in behavior modifications specific to the patient. Other coping strategies were given to the patient to help deal with stress, withdrawal symptoms, or any feelings related to smoking that the patient maybe experiencing at present time. In addition, the patient received a "survival kit", composed of items, such as peppermint and cinnamon candies, a stress ball, "reminder card" of the reasons from quitting, and a bottle of air/fabric deodorizer, that may aid them through the quitting process. If pharmacotherapy was to be initiated, education and administration techniques were given to the patient. If medication was initiated prior to the quit date, evaluation of an adverse reactions were reviewed. Monitoring parameters were assessed. In addition, the patient received written education material about information discussed in session 2.



### **Session 3: Quit Date Follow-up**

The quit date follow-up was the last individualized appointment, lasting anywhere from 30 to 60 minutes and was conducted anywhere from 3-5 days after the quit date. The main focus of this appointment was to follow up with the patient after they have quit smoking and to encourage them to continue with the quitting process. Coping strategies for stress and withdrawal symptoms were discussed, as well as implementation of additional behavioral modifications. Evaluation of medication, adverse reactions, and compliance was addressed. Monitoring parameters were collected and the patient received additional educational material.

### **Session 4-6: Continuing with the Quitting Process**

The remaining sessions were held as a group discussion with past smokers in various stages of the quitting process. Discussion of coping strategies and group support was the main focus of these sessions. Behavior modifications were given, depending on what the patients were struggling with as they continued through the quitting process. In addition, concerns or issues with relapse were addressed. Monitoring parameters were collected and written education materials were provided. The timeline for sessions 4-6 are as follows: session 4: 1-2 weeks after quit date, session 5: 4 weeks after quit date, session 6: 6-8 weeks after quit date.

### **3-Month Follow-up**

This session was the exiting interview of the study. The session could be done as a group or individualized, depending on the quit date for the patient. Assessments of the patient's current smoking habits were evaluated. Concerns or issues with relapse were addressed. The patient was asked to fill out several surveys, including the post-test assessing knowledge of smoking and health consequences, and patient satisfaction of the program.

For a brief overview of the program see Table 3.

### ***Main Outcome Measures***

In order to determine the feasibility and impact of the smoking cessation program various forms and surveys were utilized (surveys, Appendix A & B). During the initial consult, a smoking history, past medical history, and family history were obtained for every patient. At every visit, monitoring parameters were collected to evaluate the progress of the program and for comparison to baseline. The carbon monoxide machine was used to help motivate patients to either become smoke-free or remain smoke-free<sup>17</sup>. The patient was administered a pre- and post-test to assess the

patients knowledge about smoking and health consequences. Compliance was self-reported by the patient, addressing abstinence and relapse at weeks 1, 4, 10, and 12 from quit date. Satisfaction with pharmacists as the facilitator, location of the program, content of the program, and patient's willingness to pay was documented via patient satisfaction survey.

### *Results*

At the end of the residency calendar year, over 250 customers were approached for enrollment into the smoking cessation program, 8 patients enrolled, 5 patients have completed the program, 3 patients were lost due to readiness to quit, and 1 patient was not eligible due to current substance abuse in addition to tobacco utilization. Program enrollment began in November 2003, after IRB approval, and continued until March 2004.

The findings presented are for the 5 patients who have completed the smoking cessation program. All five patients enrolled into the study were African American females. The age of the patients ranged from 44 to 80 years old. Four out of five patients were in the preparation stage of willingness to quit (see Table 2). However, one patient in the contemplation stage needed more motivation to help quit prior to setting a quit date. Using the Fagerström test for nicotine dependence, one patient had a score of 6, three patients had a score of 7 and one patient had a score of 8. The mean addiction level was 7, indicating a high addiction for nicotine. The mean duration of smoking was 21 years with a mean number of one pack smoked per day. One patient reported only one prior quit attempt while the remaining four indicated greater than 2 previous quit attempts, with the highest smoke-free period of six months. All patients reported using some form of nicotine replacement therapy (NRT) to aid in the quitting process during past attempts to quit smoking. Two patients indicated that they were not sure if they used the NRT appropriately, while one patient stopped the nicotine patch due to side effects (vivid dreams).

All patients received behavior modifications throughout the 3 months of the program. However, pharmacotherapy varied for each patient. Two patients used nicotine patches adjunctive to behavioral modifications, one patient was prescribed bupropion adjunctive to behavioral modifications, and lastly, two patients were motivated enough to use only behavioral modifications. Increased appetite was the only reported nicotine withdrawal symptom by four out of five patients. However, behavioral modifications were used to help prevent a substantial weight gain. Four out of five patients had a three pound weight gain, while one patient had a 2 pound weight loss. No significant difference was

seen in the comparisons of monitoring parameters at baseline and completion of the program (see Table 3). Four patients showed an improvement in pre- and post-test scores over the 3-month program, while one patient had a perfect pre- and post-test score. Overall, mean education test scores improved from 71% pre-test score to 96% post-test. Three out of the five patients self-reported abstinence over the 3-month timeframe. Two patients admitted to relapse at weeks 9 and 10 from quit date (see Figure 1). The therapies used of the patients that remained smoke-free at the end of the 3-month timeframe were the two patients using behavioral modifications only and the one patient using bupropion plus behavioral modifications. Therefore, the program gave guidance for three individuals to remain smoke-free and enhanced knowledge about tobacco abuse and smoking consequences for all patients.

Upon completion of the program, patients were given a patient satisfaction survey to evaluate the program, facilitator, and cost of the program, by responding strongly agree, agree, neutral, disagree, or strongly disagree to 22 questions. All five patients were consistent in strongly agreeing that the program tailored to their needs and assisted them in quitting smoking. For the two patients who were not smoke-free at the end of the program, they concluded that the program fit their needs, but the reason they were not smoke-free at the end of the program was due to the individual not wanting to remain smoke-free. The two patients also agreed that they would re-enroll into the program again when they were ready to quit smoking. All five patients felt that the pharmacist, as the facilitator, was accessible, knowledgeable, and was a great support system during the quitting process. Three of the five patients reviewed the written education material outside the sessions and felt that the handouts helped to continue their motivation. As for the cost of the program, two out of five patients strongly agreed and two additional patients agreed to pay out-of-pocket the full price of the program if there was no assistance by the insurance company. Therefore, majority of the patients felt that the program had such a positive impact on the quitting smoking process that they would be willing to pay full price for participation in the program.

In addition, patients were given the opportunity to write in additional responses to strengths and weakness of the program, the contents of the survival kit, and the use of the carbon monoxide machine. Two of the five patients preferred individual sessions over group sessions and requested the session last longer than 30 minutes. The remaining three patients strongly agreed with the combination of both individual and group sessions, thereby increasing the support system during group participation. All five patients felt that the survival kits helped to get them started, by supplying them with alternatives when a craving occurred. They all recommended continuing using the survival kits,

that the kits were a great motivation tool. The carbon monoxide machine was favorable to all five patients, as they felt it continued to motivate them.

### *Discussion*

Although patient enrollment was low due to readiness to quit, the patient satisfaction survey indicated a community pharmacy setting is an accessible place for patients to attend a smoking cessation program. Furthermore, pharmacists have the ability to address patients about smoking status and to help motivate patients to be smoke-free. In addition, pharmacists have the knowledge base to help educate patients on tobacco consequences and medication selection. Of the five patients enrolled in the pilot implementation study, three patients remained smoke free over the 3-month timeframe. Similar results were seen in the Virginia Commonwealth University, School of Pharmacy study, which conducted a single group, unblinded study, describing the implementation of a smoking cessation program in seven-chain community pharmacies<sup>15</sup>. Pharmacists were trained and given a manual developed by the Virginia Commonwealth University, School of Pharmacy. The study measured percent abstained from smoking cigarettes over time. The results indicated that 25% of the 48 patients enrolled remained abstinent from smoking cigarettes for 12 months or more. The authors concluded that a pharmacist based smoking cessation program had a better success rate at quitting smoking than other previously studied programs facilitated by other health care providers.

Unique components of this program included having a combination of individual and group sessions. The individual time allows the facilitator to get to know the patient and gather confidential information. The group sessions gave the patient opportunities to learn additional behavioral modifications used by other patients going through the quitting process, to hear about successes from previous smokers, and create a larger support system. The patients also showed favorable responses to the use of the carbon monoxide machine and the survival kits, supplied on the quit date, as motivational tools to become or remain smoke-free.

Limitations of the current study include the limited timeframe of this pilot program, a small patient population, and having a single site with only one pharmacist facilitating the program. In order to increase the chances of enrolling patients and expedite the reporting of results of this novel program. Relapse for patients most likely occur within the first 3 months from quitting smoking<sup>2</sup>. Therefore, it is important to design the program over a longer period of time to help prevent relapse for patients. Secondly, the small patient population can be attributed to the patients' willingness

to quit smoking. Many patients were approached about the program, but were not ready to make the quitting attempt. The patient must be ready or motivated enough to quit smoking in order to be successful in the program. Finally, the single site with one pharmacist as the facilitator provided an example of a smoking cessation within a community pharmacy setting. However, more sites and with more pharmacists as the facilitator need to be examined.

### *Rationale for Carbon Monoxide Machine*

One article, within a community pharmacy setting, faced limitations with measuring of compliance and improvement with smoking cessation programs<sup>15</sup>. Asking a patient about the smoking status is a subjective measure, which can mislead results. An objective measure is needed to help eliminate a study limitation and to effectively show compliance and improvement with patients quitting smoking. Cotinine, carbon monoxide, thiocyanate, anabasine and anatabine are several markers used to measure tobacco use<sup>19,20</sup>. More studies have been performed measuring cotinine or carbon monoxide levels for compliance and improvement with smoking cessation than with thiocyanate, anabasine, and anatabine levels. Therefore, measurement of thiocyanate, anabasine, and anatabine were not further explored for this study.

Cotinine is measured in the plasma, saliva, and more accurately through the urine, which can make it complicated in a community pharmacy setting to measure. In addition, the cost of dipsticks and supplies for measuring cotinine can be quite expensive compared to the other biomarkers available to measure. Carbon monoxide is a byproduct from smoking cigarettes, and can be measured by expired air and/or in the blood. The measurement is specific for detecting the dependency or how heavy of a tobacco smoker. Therefore, CO measurement is useful for determining smoking status. Results from a carbon monoxide machine are immediate, providing feedback within seconds. Once the carbon monoxide machine was obtained, monitoring carbon monoxide levels produced a measure of compliance and motivation aid in smoking cessation. Exact carbon monoxide levels were not reported for this study due to obtaining the carbon monoxide machine after the patient enrollment had already begun. However, after reviewing the patient satisfaction survey, the carbon monoxide machine is a highly favorable tool, increasing patients' motivation to quit smoking.

The EC50-Micro III Carbon monoxide monitor<sup>17</sup> has been used for the past 15 years by the pharmaceutical industry in their research with NRT and smoking cessation. The machine offers two distinct forms of biofeedback, the parts per

million (PPM) value, which represents the level of carbon monoxide (CO) in the lungs and the % carboxyhemoglobin, which is the level of CO in the blood. The hand-held monitor was simple to use without any invasive procedure. For these reasons the CO monitor was employed in this study.

### *Pharmacy Practice Implications*

Overcoming nicotine addiction is a struggle for many people with tobacco abuse. On average, former smokers make 8-11 quit attempts before successfully becoming smoke-free, making quitting smoking frustrating and difficult<sup>21</sup>. It is extremely important to realize that relapse does not mean failure, but is one step further to successfully becoming smoke-free.

With knowledge about tobacco abuse and a few resources, implementation of a smoking cessation can be incorporated into a pharmacy setting. There are many considerations to keep in mind while designing a smoking cessation program within a community pharmacy setting. The design of the smoking cessation program is going to vary depending on the location where the program will occur (within or near the pharmacy). The time allotted for patient interaction and counseling can affect regular dispensing responsibilities. Therefore, extra staff coverage maybe needed and can be organized by setting clinic hours for smoking cessation services, requiring patient appointments.

Therapy will be very individualized for every patient, dependent on smoking history, current health history, and medication profile. Behavioral modifications lay the foundation for treatment of tobacco dependence. During our study we found that patients attempting to quit on their own had a difficult time with developing behavioral changes to implement. Taking a closer look at why and when the patient smokes can help to develop behavioral modifications or strategies for the patients while becoming smoke-free. In addition, patients of low income areas have limited resources to aid in smoking cessation and become dependent of behavior modifications and guidance to get them through the quitting process.

Additional multicomponents are involved in the treatment of tobacco dependence<sup>2,5</sup>. Pharmacotherapy plus behavioral modifications in combination with a support system have a high success rate than behavioral changes alone.

Pharmacotherapy can involve nicotine replacement therapy (NRT; transdermal patch, nasal spray, inhaler, gum, and lozenges), bupropion SR, clonidine, or nortriptyline. More recently, patients are using two forms of

pharmacotherapy plus behavioral modifications in the treatment of tobacco dependency. Such combinations have been bupropion SR, a form of NRT plus behavioral changes<sup>22</sup> or two NRTs plus behavioral modifications<sup>23,24</sup>.

The more sessions the patient is involved with during the quitting process, whether it is face-to-face or over the telephone, will also increase the chances for patient to successfully becoming smoke-free<sup>2</sup>. Having a support or buddy system as part of the program has shown to increase abstinence rates. A meta-analysis of 19 studies, reported by the Treating Tobacco Use and Dependence Clinical Practice Guidelines, indicated that social support increased the success of becoming smoke-free by 50% compared to those who did not have a buddy system<sup>7</sup>. The American Legacy Foundation reports results from a survey revealing 54% of women and 34% of men who have seriously attempted to quit smoking relied on a support system<sup>25</sup>. The surrounding support helps to increase motivation for the individual to become or remain smoke-free. A group session could include a group of patients attempting to quit smoking plus the family and friends supporting the individual attempting to quit smoking. Most patients enrolled in the smoking cessation program at our site preferred having a combination of individual and group sessions. The groups sessions aided in supplying additional behavioral changes, provided proof that quitting smoking can be done, and increased a support system to help continue motivation.

Documenting the patient's past and current process through the quitting process is critical and can be used to develop the appropriate therapy in aiding the patient in becoming smoke-free. Several forms should be developed to document the past medical history, smoking history, as well as clinical progress notes. In addition to a history and note form, our clinic designed a willingness to quit form, combining questions from the Fagerström nicotine addiction questionnaire and the transtheoretical model assessment of stages. Furthermore, consent forms and physician letters should be written.

### *Conclusion*

This research project demonstrates the feasible of implementing a smoking cessation program within a community pharmacy setting. Although patient enrollment was low, the patients that completed the program were satisfied with the information delivered, the program design, and the outcomes. They all agreed that the pharmacist was knowledgeable and could successfully facilitate the smoking cessation program. The knowledge pre- and post-test demonstrated that patients left the program, whether smoke-free or not, with improvement in knowledge about tobacco

abuse and smoking consequences. This alone can play an impact on the patients who continued to smoke and the future quitting process.

Pharmacists can play an important role by assisting their patients in improving the quality of life and prevent further complications associated with cigarette smoking. Pharmacists are accessible healthcare professionals for many Americans. Addressing smoking status can be important for helping to determine drug-drug interactions. It only takes a moment to continue the conversation by addressing the patient's willingness to quit smoking. Pharmacists have access to over-the-counter and prescription medications for smoking cessation. Counseling the patients on the proper technique administration, what to do about side effects, and how the medication is going to work for smoking cessation can help to improve compliance with utilization of medication, which in turn will improve success rates with the program. Humans are creatures of habit and it is difficult to break the daily cycles we have created. With guidance, strategies for implementation of behavioral modifications, medications, support, most importantly, the patient's own motivation to quit smoking, the program can be a success.



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Table 1: Patient Eligibility

Inclusion Criteria	Age $\geq$ 18 years of age Smokes at least ½ pack (10 cigarettes) or more per day for at least 6 months
Exclusion Criteria	Pregnancy/breast feeding History in the past year of alcohol dependency/substance abuse Smokeless tobacco users Subjects currently involved or participated in any form of behavioral or pharmacological smoking cessation program in the past month

Table 2: Determination of Tobacco Dependence and Willingness to Quit

Fagerström Nicotine Dependence*				
	0 points	1 point	2 points	3 points
1. How soon after you wake do you smoke your first cigarette?	After 60 minutes	31-60 minutes	6-30 minutes	Within 5 minutes
2. Do you find it difficult to refrain from smoking in places where it is forbidden, such as the library, theater, or doctor's office	No	Yes	NA	
3. Which would you hate most of give up?	All others	The first cigarette of the morning	NA	
4. How many cigarettes do you smoke a day?	10 or less	11-20	21-30	31 or more
5. Do you smoke more frequently during the 1 <sup>st</sup> hours after waking than the rest of the day?	No	Yes	NA	
6. Do you smoke when you are so ill that you are in bed most of the day?	No	Yes	NA	
Score of 6 or higher: high nicotine dependency				
Score of 5 or less: suggests low to moderate nicotine dependency				
Assessing Patient's Willingness to Quit per Transtheoretical Model*				
1. Do you have the desire to quit smoking?	Yes → Contemplation Stage (thinking about quitting) No → Precontemplation Stage (not ready to quit)			
2. Do you want to quit smoking within the next 6 months?	Yes → Contemplation Stage (thinking about quitting) No → Precontemplation Stage (not ready to quit)			
3. Do you want to quit smoking within the next 30 days?	Yes → Preparation Stage (preparing to quit; set quit date) No → Contemplation or Precontemplation Stage			

Table 3: Program Design and Timeframe

Table 3. Program Design and Timeframe							
	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	3 Month Follow-up
	Initial Consult	Quit Date	Quit Date Follow-up	Continuing with the Quitting Process			
Appointment Timeframe	Day 1	2 weeks from initial consult	2-4 days after quit date	1-2 weeks after quit date	4 weeks after quit date	6-8 weeks after quit date	3-months after quit date
Session Agenda	Patient Consent  Assess Willingness to Quit  Pre-Education Test  Discussion of Behavioral Modifications and Pharmacotherapy  Set and Plan for Quit Date  Trigger Log	Focus on Quitting  Review Tracking Logs  Review and Learn New Behavioral Modifications	Follow-up with the Quitting Process  Help Get Through Withdrawal Process  Encourage Patient to Continue Quitting  Re-evaluate and Discuss Behavioral Modifications and Pharmacotherapy			Follow-up with the Quitting Process  Encourage Patient to Continue Quitting  Re-evaluate and Discuss Behavioral Modifications and Pharmacotherapy  Post-Education Test  Patient Satisfaction Survey	
Monitoring parameters assessed at every visit, including blood pressure, pulse, weight, adverse drug reaction evaluation (if applicable), cardiovascular risk/symptoms, nicotine withdrawal symptoms, and carbon monoxide levels.							

Table 4: Comparison of Monitoring Parameters at Baseline and Completion of Program

Parameter (n=5)	Baseline Mean (Range)	Completion Mean (Range)
Weight (pounds)	173 (117-245)	176 (122-242)
Blood Pressure (mmHg)	123/74 (100/68 – 142/80)	114/73 (100/62 – 128/70)
Pulse (bpm)	57 (48-60)	60 (50-66)
Education Test Score (11 questions/points)	Pre-Test 71% (55% - 100%)	Post-Test 96% (82% - 100%)

Figure 1: Self-reported abstinence and relapse

