A Multi-component Intervention Targeting Utilization of the *Treating Tobacco Use and Dependence* Guideline in the Primary Care Setting

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ABSTRACT

Tobacco use, the single most preventable cause of disease, disability, and premature death in our society, is responsible for more than 440,000 deaths per year. Seventy percent of Americans who use tobacco express that they would like to quit and 70% of these visit a health care provider each year. Unfortunately, 50% of tobacco users who seek health care say they have never been advised to quit or provided specific strategies to be successful with quitting. Originally released in 1996 and updated in 2000, the Public Health Service (PHS) *Treating Tobacco Use and Dependence* Clinical Practice Guideline delineates specific recommendations to be used by clinicians and the primary care team for addressing tobacco use and dependence. The purpose of this project was to evaluate the impact of a multi-component intervention on clinicians' and health care team members' utilization of the guideline as measured by documentation on the medical record at three phases. Patient telephone interviews were also conducted for comparison to the medical record documentation. Data analyses revealed the multi-component intervention had significant impact on clinicians' documentation of tobacco use (p < 0.0001). Utilization of the guideline in the primary care setting may make a substantial contribution in addressing tobacco-related health issues by targeting tobacco use and assisting tobacco users with their cessation efforts.

Key Words: Tobacco cessation, clinical practice guideline, primary care.

Introduction

Tobacco use is responsible for approximately 4.9 million premature deaths annually worldwide, with an expected increase to 10 million per year by 2030. [1-3] It is estimated that 50% of all Americans who continue to use tobacco will die from a smoking related illness.[4] Although the health consequences of using tobacco have been well publicized, the toll attributed to its use remains high at 440,000 American deaths per year, approximately 20% of all deaths.[5-7] Tobacco use is causally related to the first, second, and third leading causes of death in the United States (U.S.),

coronary heart disease, cancer (lung), and stroke respectively.[5] In addition to human suffering, the economic costs for tobacco use are staggering. For direct medical care of adults with tobacco attributable illnesses, costs are $75.5 billion annually with an additional cost of $81.9 billion due to lost productivity.[5,8]

Literature Review

Healthy People 2010 calls for a smoking prevalence reduction to 12% for US adults (18 years and older).[9] Currently, 46.2 million adults use tobacco: 25.2% of men and 20.7% of women.[10-11] Nearly 25 million US citizens alive today will die prematurely unless they are successful with tobacco cessation.[5] The most recent U.S. Surgeon General's Report calls for a concerted and focused effort for tobacco cessation.[5] Greater than seventy percent of tobacco users report they want to quit completely; 50% of these say they have never been advised to quit or provided specific strategies to be successful with quitting.[9,12] Approximately 26% of all primary care visits are for patients who use tobacco.[13] Clinicians and health care team members are in an opportune

position to impact and address patients' tobacco use and dependence and offer effective strategies for successful cessation.

Healthy People 2010's goal for primary care providers is that 85% should routinely implement tobacco cessation counseling with their patients who smoke.[9] The National Committee for Quality Assurance (NCQA) Health Plan Employer Data and Information Set (HEDIS) for 2004 includes medical assistance with cessation as a performance measure.[14] Health care provider endorsement has been shown to be the strongest factor in prompting health promotion behaviors and providers can be effective through cessation counseling in changing the behavior of their patients who smoke.[15,16]

In 1996, *Smoking Cessation Clinical Practice Guideline No. 18* was sponsored and released by the Agency for Health Care Policy and Research, (now known as the Agency for Healthcare Research and Quality [AHRQ]) and the Public Health Service (PHS).[17] The guideline was updated in 2000 and released as *Treating Tobacco Use and Dependence* Clinical Practice Guideline.[18] The Clinical Practice

Guideline is based on a systematic review and analysis of scientific articles published from 1975-1999. [18] The guideline identified eight key findings and specific recommendations that should be utilized by clinicians at each patient contact. The guideline supports involving all members of the health care team in addressing tobacco cessation with patients. The eight key findings for clinical utilization are summarized in Table 1.

Table 1: Summary of the Eight Key Findings of the PHS Guideline

No.	Key Finding
1.	Tobacco dependence is a chronic condition that often requires repeated intervention. Effective treatments exist that can produce long-term or even permanent abstinence.
2.	Because effective tobacco dependence treatments are available, every patient who uses tobacco should be offered at least one of these treatments: ▸ Patients *willing* to quit should be provided with identified and effective treatments in the guideline. ▸ Patients *unwilling* to quit should be provided with a brief motivational intervention.
3.	Clinicians and health care delivery systems (i.e. administrators, insurers, purchasers) should institutionalize consistent identification, documentation, and treatment of every tobacco user who is seen in a health care setting.
4.	Brief tobacco dependence treatment is effective, and should be offered to every patient who uses tobacco.
5.	There is a strong dose-response relationship between the intensity of tobacco dependence counseling and its effectiveness. Treatments involving person-to-person contact (i.e. individual or group telephone counseling) are consistently effective, and effectiveness increases with treatment intensity (e.g., minutes of contact).
6.	Three types of counseling and behavioral therapies were found to be especially effective and should be used with all patients who are attempting tobacco cessation: problem solving/skills training; intra-treatment social support; and extra-treatment social support.
7.	Except in the presence of contraindications, effective pharmacotherapies for tobacco cessation should be used with all patients attempting to quit. First line, second-line, and over-the-counter products are identified for use.
8.	Tobacco dependence treatments are both clinically effective and cost-effective relative to other medical and disease prevention interventions. Insurers and purchasers should ensure that: ▸ All insurance plans include as a reimbursed benefit the counseling and pharmacotherapeutic treatments identified as effective in this guideline; and ▸ Clinicians are reimbursed for providing tobacco dependence treatment.

* Adapted from the PHS *Treating Tobacco Use and Dependence* Clinical Practice Guideline (Fiore MC, Bailey WC, Cohen SJ, Dorfman, SF, Goldstein, MG & Gritz, ER et al, 2000).

The *Treating Tobacco Use and Dependence* Clinical Practice Guideline identifies the most important component in addressing tobacco use

and dependence as screening or identification of tobacco use. If the patient is a tobacco user and expresses willingness to quit, the guideline specifies actions for clinicians to use referred to as the 5-A's – *Ask, Advise, Assess, Assist*, and *Arrange.*[18] *Asking* about tobacco use to systematically identify all tobacco users at every patient encounter is considered critical. All tobacco users should be strongly *advised* to quit and then assessed for their willingness to quit. *Assistance* involves clinician recommendation of the combination of appropriate pharmacological and behavioral therapies. An *arrangement* for follow-up contact should be made for every tobacco user attempting to quit. Specific interventions under each "A" are included in the Clinical Practice Guideline to assist the clinician in helping all tobacco users be successful with cessation efforts. This research was conducted prior to the guideline revision and therefore did not measure "*Assess.*"

For tobacco users not willing to make a quit attempt, the guideline recommends the 5-R's model: Relevance, Risks, Rewards, Roadblocks, and Repetition.[18] *Relevance* is a strategy clinicians should use to make tobacco

cessation treatments individualized and personalized for each patient. *Risks* of smoking should also be personalized, relevant, and include acute, long-term, and environmental risks. *Rewards* of tobacco cessation should be identified by the patient as benefits most relevant to them. If the patient is not able to identify rewards, the clinician should point out specific personalized rewards such as improved sense of taste and smell, improved health, saving money, and setting a good example to children. *Roadblocks* should be assessed by asking the patient to identify personal barriers to quitting, such as fear of failure, weight gain, or enjoyment of tobacco. *Repetition* involves repeating the 5-R's at each encounter. Reviewing the relevance, risks, rewards, and roadblocks with tobacco users at every visit may assist patients to move toward a stage of readiness for beginning cessation treatment. Although the 5-R's are important for providers to utilize with all tobacco users who are unwilling to begin cessation efforts, they were not measured in this project.

This study was conceptually based on a combination of two approaches: social cognitive learning theory [19] and social ecology model.[20] Bandura's social

cognitive learning theory [19] posits the concept of reciprocal determinism, indicating some aspects of the individual and his/her environment simultaneously influence each other. Stokol's social ecology model [20] portrays health as influenced by an interplay of the person and his/her environment at numerous levels, one of which includes organizational contexts. Taken together, these two conceptual frameworks have also been used in prior studies and provide an organizational systems approach that impacts both individual and organizational levels for successful change. [21,22] For this research, the individual change was focused on patient tobacco cessation efforts as prompted by the provider. The organizational change was focused on system changes (i.e. Smoker Identification Label and multi-component intervention) intended to cue the provider to consistently assess tobacco use and recommend the Clinical Practice Guideline cessation strategies to all tobacco users. People can be successful with cessation if they are motivated and receive specific strategies on how to succeed. Additionally, patient satisfaction with clinicians has been shown to be increased with tobacco use

identification and cessation strategies in the practice setting.[23] Because nicotine addiction results in physical and psychological dependence, the best strategies for success as identified in the Clinical Practice Guideline are modalities that address both aspects of the addiction.

Purpose and Research Questions. The purpose of the study was to evaluate a multi-component intervention targeting utilization of the Clinical Practice Guideline in a primary care setting.

Four research questions were explored:

1. What is the current rate of tobacco users' identification documented on medical records within a primary care setting?

2. What is the current rate of documentation by clinicians and the health care team members on treating patients' tobacco use and dependence (the 4-A's - *Asking, Advising, Assisting, and Arranging*)?

3. Does a multi-component intervention improve clinicians' and health care team members' documentation of treating patients' tobacco use and dependence

(tobacco user identification and the 4-A's: *Ask, Advise, Assist, and Arrange*)?

4. Is patient telephone interview data consistent with clinicians' and health care team members' documentation

of treating patients' tobacco use and dependence (the 4-A's: *Ask, Advise, Assist, and Arrange*)?

A schema depicting the overall study plan is presented in Figure 1.

Figure 1: A Schema of the Multi-component Intervention Targeting Utilization of the Treating Tobacco Use and Dependence Guideline* in the Primary Care Setting
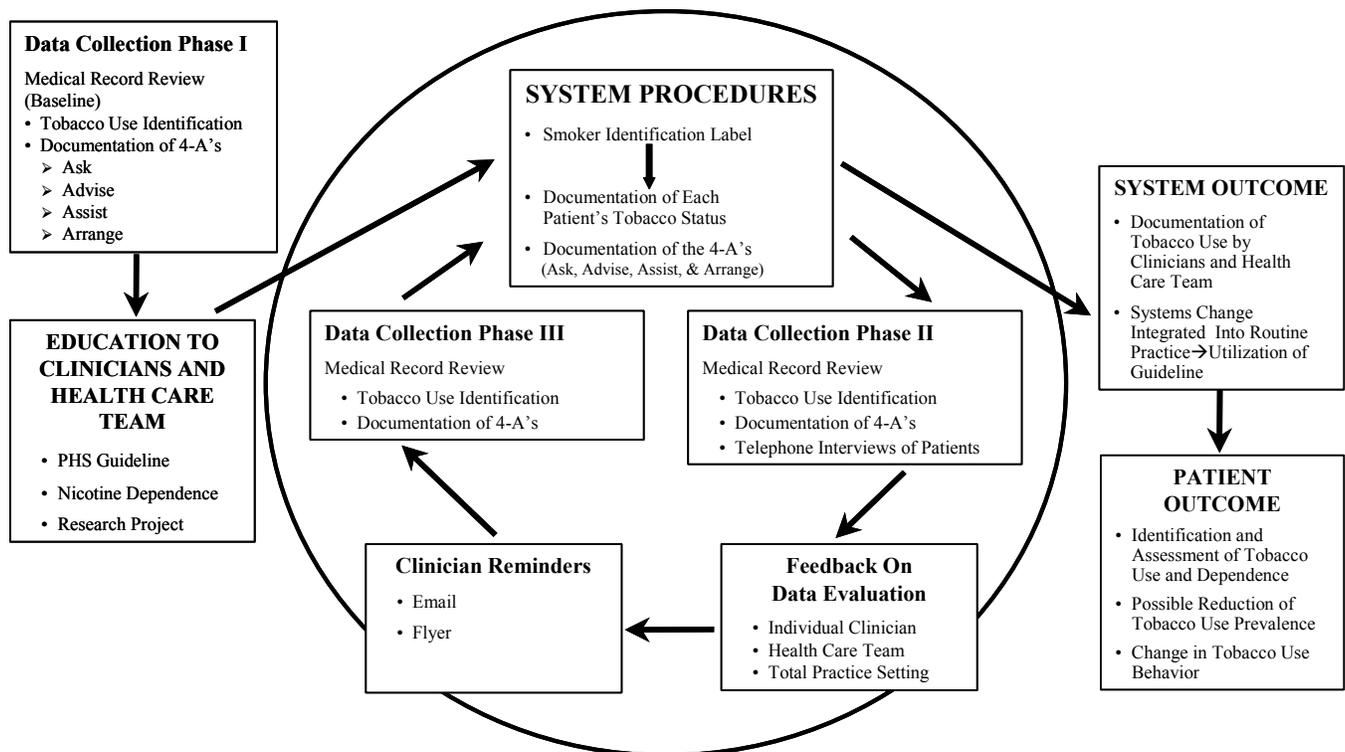
* Public Health Service, 2000
(Note: This research was conducted prior to the PHS Guideline revision that included an additional A - Assess).

Methods

A repeated measures design was used to evaluate the impact of a multi-component intervention on clinicians' and health care team members' utilization of the Clinical Practice Guideline.[17]

Setting and Sample. The setting was a large primary care practice within an academic medical center. The practice is comprised of five physicians (Internists, Family Medicine), one nurse practitioner (NP), and seven healthcare team members (licensed practical nurses [LPN's] and certified medical assistants [CMA's]). For this study, the physicians are referred to as clinicians with the remaining staff referred to as healthcare team members. Patient visits average 250 per week for the practice. The patient population is primarily composed of Caucasian and African-American adults 18 years of age or older. Although younger patients are seen in the practice setting, only medical records of those 18 years of age or older were reviewed for this study.

There is a systematic procedure in place that is followed for every patient from the point of entry into the organization to completion of the visit with exiting the office. This procedure is as follows: patients enter the practice, sign in, and have a seat in the waiting room; each patient is called to an area where vital signs are obtained by a healthcare team member; the patient is then taken to a second waiting area and their medical record is placed in a receptacle on the door; the clinician obtains the chart and enters to see the patient; the patient is provided a fee ticket and leaves through the check-out center; the clinician dictates the encounter using a Dictaphone; the transcriptionist types the dictation; the paper copy of dictation comes to the clinician to review and approve or revise; and the medical documentation is placed on the patient's chart.

Procedures. This study received approval from the Human Assurance Committee/Institutional Review Board of the academic medical center of the principal investigator (PI), which was also the setting of the primary care practice. Permission to conduct this project in the primary care practice was obtained from the clinicians and healthcare team members prior to study

initiation. Informed consent was obtained on all clinicians and healthcare team members (the study participants).

Research assistants received a two-hour training session by the PI on the medical record review form. Additionally, the research assistants were assisted by the PI in completing two initial medical record reviews to reinforce correct data collection procedures. Inter-rater reliability was assessed on 10% (*N*=30) of the data with no errors detected. The medical record review form was developed for this study and is a data collection tool similar to those used in quality improvement projects. The form was piloted prior to study use and content validity was assessed by having three tobacco cessation experts familiar with the Clinical Practice Guideline review the tool.

Medical records were reviewed in 1999 at three time points (Phases I, II, and III) for documentation of: 1) assessment for identification of tobacco use; 2) *asking* about tobacco use; 3) *advising* the tobacco user to quit; 4) *assisting* the tobacco user to quit (pharmacological and behavioral treatments); and 5) *arranging* for follow-up of tobacco users trying to quit (i.e. return visit, telephone contact). This study was completed prior to the release of the revised Clinical Practice Guideline; [18] therefore, *Assess*, was not included in this project. The three phases of data collection with a description of each phase are presented in Table 2.

Table 2.
Overview of Study Phases and Procedures

Phase	Week(s)	Procedure
I	1	Baseline medical record reviews for documentation of tobacco use identification and the 4 A's (patient visits prior 6 weeks).
II	5	Clinicians received an educational program and informational materials on the PHS guideline and nicotine dependence; and overview of the research project.
	7	Clinicians completed a survey form indicating whether they had read the informational materials provided to them two weeks earlier.
	8	Health care team members received an informational session with materials describing the research project. Their help was solicited for implementing with each patient record the new, brightly colored label indicating tobacco status.
	10	Medical record review for documentation of tobacco use and the 4 A's from patient visits prior 4 weeks (5 weeks following the educational intervention).
	11-13	Telephone interviews of patients whose medical records were reviewed in Phase II.
III	14-16	Written feedback from Phases I and II medical record reviews provided to clinicians and healthcare team members on new tobacco status label use, tobacco identification, and the 4 A's (individual and entire practice).
	18	Email reminder sent to all clinicians regarding continued use of PHS guideline and documentation of efforts.
	20	Flyer reminder distributed to all clinicians (with similar message of recent email).
	28-30	Medical record reviews for documentation of tobacco use and the 4 A's from patient visits prior 8 weeks (following feedback to clinicians from Phases I and II documentation and email and flyer reminders).
	31	Written feedback provided to clinicians from medical record reviews at Phases I, II, and III (individual and entire practice).

Patients whose medical records were reviewed in Phase II (*N*=100) were contacted by the research assistants for a telephone interview. The research assistants were trained to use a scripted protocol for each telephone contact. Each patient received a letter one to two weeks prior to the telephone call that introduced the research team and also described the telephone call that the patient would be receiving regarding the study. The letter explained that they had the option of answering or not answering the questions and if they chose to respond to the interview questions, that this would be their implied consent to participate in the telephone survey. Research assistants were successful in reaching and receiving responses from 87% of the

patients contacted (*N*=87).

Intervention. After the baseline medical record review (Phase I), all clinicians received a multi-component intervention that included: one 60 minute educational seminar on the PHS Guideline,[17] an overview of tobacco use and dependence, an overview of the research project, and a resource packet of information. The new smoker identification label was also presented at the seminar with emphasis that this was to serve as a reminder to identify tobacco status of all patients. The resource packet included the following:

- the Clinical Practice Guideline (1996 version);[17]
- Helping Smokers Quit – A Guide for Primary Care Clinicians;[24]
- Smoking Cessation: A Systems Approach for Health Care Administrators, Insurers, Managed Care Organizations, and Purchasers;[25]
- Two Questions – Three minutes – A Lifetime of Difference for Your Patients;[26]
- Consumer Guide for Patients – You Can Quit Smoking;[27] and

- community resources for tobacco cessation programs in the local community.

All clinicians were asked to complete a form two weeks after the education program indicating whether they had read the information provided at the seminar.

All healthcare team members received a 30-minute informational session on the research project. Their help was requested with the new smoker identification label. Specifically, they were asked to place the brightly colored adhesive label on the front of all patients' medical records beginning immediately. The labels had two lines of text with spaces to check the applicable area. The information on the label read:

Smoking Status:

    _____ **Current**

    _____ **Former**

    _____ **Never**

It had a place for the healthcare team member to initial and date. Data were collected during the medical record reviews on the presence and completion of this new label.

At the conclusion of the session for the healthcare team members, a survey was distributed for completion. The

brief anonymous survey was investigator-developed and contained eight questions to include: age, gender, years of education, certification/licensed as, type of clinician assisted (i.e. family medicine, internist), smoking status, exercise status (yes/no and frequency if yes), and weight status (overweight, underweight, or satisfied with weight). The purpose of the survey was to examine the healthcare team members' personal perceptions of their health and to assess for smoking status.

Data Analysis. A power analysis was performed to determine the sample size of medical charts needed before and after the educational intervention per clinician. While the current smoker identification and counseling rates were unknown, to determine conservative sample sizes, the current rates were assumed to be 50%. Two weeks after the educational program, the rates of smoker identification and counseling were expected to increase to 85%. To determine the sample size, the significance level was set to be 0.05, the power to detect a difference between the rate of tobacco cessation implementation before (50%) and after (100%) the educational program (giving an effect size of .25) was at 80%. Using

these assumptions, it was determined that 80 patient charts would be the minimum needed at each of three phases, before the educational program and two times after the educational program, giving a total of 240 charts. Instead of the minimum number of 80, the number of charts to be used at each phase of the study was increased to 100 to ensure an adequate sample. Random sampling was used for data collection at all three phases. The random selection for each phase was derived from a list of all patient visits to the primary care practice within the time frames depicted in Table 2.

Descriptive statistics were calculated in each phase for documentation, smoking status and the 4-As. To examine differences in these variables across time, a Cochran-Mantel-Haentzel chi-square test was performed which controlled for the primary care physician. Data were analyzed based on the following medical record documentation: the application and completion of the Smoker Identification label, and documentation of tobacco counseling per the Clinical Practice Guideline (see three phases in Table 2). Bowker's test of symmetry or McNemar's test was used to determine

the level of agreement between the chart documentation and the patient telephone interview. However, due to the small sample size of smokers contacted for the telephone interview, the tests for *advise* and *assist* components of the 4A's were unstable. Statistical significance was assessed using an alpha level of 0.05.

Results

Three hundred medical records were reviewed over the course of the study (100 at each of the three phases) and data were compared descriptively. These reviews provided answers to research questions one through three.

Research Question One. The current rate of identification of tobacco users as measured by documentation on the medical record at Phase I was 69% (*N*=69). Thirty one percent (*N*=31) of medical records reviewed did not have documented the tobacco status of the patients.

Research Question Two. Phase I medical record reviews regarding the current rate of documentation by clinicians and the health care team members on the 4-A's were as follows:

Asked, 69%; *Advised*, 10%; *Assisted*, 5%; and *Arranged*, 0%.

Research Question Three. The multi-component intervention did improve clinicians and healthcare team members' documentation of treating tobacco use, i.e. identifying all patients regarding tobacco use and providing the 4-A's. For Phase II, which occurred after the educational and informational interventions for the clinicians and healthcare team members, the following documentation was present: tobacco use identification increased from 69% to 97.6%; *Asking* increased from 69% to 97.6%; *Advising* increased from 10% to 80%; *Assisting* increased from 5% to 80%; and *Arranging* was unchanged remaining at 0%. The Phase III medical record reviews, which occurred after the clinicians had been provided feedback on the Phases I and II documentation results and also had received email and flyer reminders, revealed the following: tobacco use identification was 92.8%; *Asked* was 92.8%; *Advised* was 78.6%; *Assisted* was 14.3%; and *Arranged* was 0%. These findings are summarized in Table 3.

Table 3.
Differences in documentation of tobacco use, smoking status, and the 4-A's between Phases I, II and III.

Variable	Phase I		Phase II		Phase III		CMH Chi-Square p-value
	N	%	*N*	%	*N*	%	
Tobacco Status Documented							39.83
Yes	69	69.0	81	97.6	90	92.8	<0.0001
No	31	31.0	2	2.4	7	7.2	
Smoking Status							44.87
Current	20	20.0	15	18.1	14	14.4	<0.0001
Former	15	15.0	26	31.3	23	23.7	
Never	34	34.0	40	48.2	53	54.7	
Unknown/Not Documented	31	31.0	2	2.4	7	7.2	
Asked							38.83
Yes	69	69.0	81	97.6	90	92.8	<0.0001
No	31	31.0	2	2.4	7	7.2	
Advised							21.30
Yes	2	10.0	12	80.0	11	78.6	<0.0001
No	18	90.0	3	20.0	3	21.4	
Assisted							21.36
Yes	1	5.0	12	80.0	2	14.3	<0.0001
No	19	19.0	3	20.0	12	85.7	
Arranged							n/a
Yes	0	0.0	0	0.0	0	0.0	
No	20	100.0	15	100.0	14	100.0	

Over all, increases in the documentation of tobacco identification and three of the 4-A's (*Asking*, *Advising*, and *Assisting*) were seen from Phase I to Phase II. Specifically, after the educational program and informational session were presented and initiation of the tobacco identification label, there were only two instances of non-documentation found within the sample of medical records. When determining where the documentation was located in the medical record, the

majority of the records were documented on the smoking identification label after its initiation (98.8%). During Phase 1, if tobacco status was documented on the label, the clinician was the provider who *asked* the patient about tobacco status, whereas in Phase II, tobacco status was *asked* by both groups, the clinicians and healthcare team members. From Phase II to Phase III, documentation of smoking status and *asking* decreased minimally (97.6% to 92.8%). For being *advised*, documentation also decreased minimally (80% to 78.6%). For documentation on *assisting*, there was a dramatic decrease (80% to 14.3%), although the Phase III documentation remained much higher than the initial Phase I documentation. There was no *arrangement* for follow-up among current smokers who were *advised* and *assisted* in any of the three phases.

 Research Question Four. Comparing results of the telephone interviews (*N*=86) with results from the medical chart reviews, there was some deviation from agreement for the 4-A's. Fifty-four

individuals had documentation of being *asked* about tobacco status in the medical record and agreed that it was *asked* about during the telephone interview. There were 20 individuals who stated that they were not *asked* about tobacco status but there was documentation in the medical records that tobacco status was *asked*. Three individuals for whom documentation was not found in the chart indicated they were not *asked*, and three individuals for whom documentation was not found in the chart indicated they were *asked*. Bowker's test was statistically significant (p=0.0003) for *ask* indicating that although the patient was *asked* about smoking status, many did not remember being *asked*. McNemar's test for *advise* (p=0.1797) and *assist* (p=0.3173) were not statistically significant indicating that types of disagreement were similar. All patients agreed that follow-up was not *arranged*. Other data specific to the interviews and medical record documentation are presented in Table 4.

Table 4.
Patient Telephone Interview Responses (*N*=86*)

The 4-A's	Patient Telephone Responses		Responses in Agreement With Documentation	Responses Not in Agreement With Documentation
ASKED	Yes	54	54	0
	No	26	3	23
	**Cannot Remember	6	0	6
ADVISED	Yes	6	5	1
	No	5	1	4
ASSISTED	Yes	3	3	0
	No	8	4	4
ARRANGED	Yes	0	0	0
	No	0	0	0

* Of those contacted (*N*=86), 11 were current tobacco users.

** The category 'cannot remember' occurred only with the first A – Asked

All seven (100%) of the health care team members completed and returned the survey. All team members were female and their ages ranged from 25 to 43 years old. Five were LPN's, one had completed a six-month medical assistant program, and one was a high school graduate only. Four of the seven had never smoked; three were ex-smokers. Five of the seven exercised regularly from one to four times per week, and three selected the response that they never exercised. Four considered themselves to be overweight, one identified herself as underweight, and two considered themselves as "about right." The healthcare team members were conscientious and responsive to applying and using the new tobacco identification label. This may possibly be due to their own non-use of tobacco products.

Conclusions

This pilot study supports the idea that a multi-component intervention for clinicians and healthcare team members can improve utilization of the Clinical Practice Guideline in the primary care setting. Specific guideline recommendations that were

implemented included the tobacco user identification label and the 4-A's. Significant increases were seen in the assessment/identification of tobacco users and three of the A's – *Ask, Advise,* and *Assist*. There was no improvement in the fourth A, *Arrange,* for any of the three phases of medical record reviews. While prior studies have reported similar results, some success has been achieved with individualizing interventions for each provider and utilizing office-based nurses as the responsible team member for *arranging* effective follow up.[28,29] Additionally, *arranging* for follow up requires more concentrated effort on the part of the provider, whether it be to schedule a return appointment, contact the patient by telephone, email, or letter, or delegate this important activity to another team member. Regardless of the healthcare setting, all healthcare clinicians, to include medical, nursing, dental, and allied health personnel, have a responsibility to society and specifically to their patients to assess tobacco use status and assist tobacco users with proven cessation strategies.[30] Numerous studies report that these professionals need education and training to feel

competent and comfortable in delivering all aspects of tobacco control interventions.[31-33]

Regarding the successful application and utilization of the tobacco identification label, this may have been related to the healthcare team members' personal non-smoking status. Specifically, because it was important to them that they have chosen not to smoke, they may have been more likely to address this with their patients. Additionally, surveying them as to their personal health habits may have raised their self-awareness of the concerns regarding tobacco use and stimulated them toward using this system change.

For the telephone interviews, there was 100% agreement regarding the 4th A, *Arrange,* as the patient and medical record were in agreement that this was not addressed. There was 60% agreement regarding being *Asked* from the patient and also as documented on the medical record reviews. The other two A's, A*ssist* and A*dvise,* had conflicting results. These discrepancies are of concern for several reasons. If the provider did address any or all of three of the four A's *(Ask, Advise, and Assist),* yet the patient did not recall

this information, perhaps the intervention by the provider did not make an impact with significant magnitude for the patient to remember. Another explanation may be that the patient did actually forget. Additional possibilities are that the provider may not have addressed it or if s/he did, it was in a manner that was not memorable for the patient. Regardless of the plausible reasons for these discrepancies, this is of concern because patients cannot act on advice they do not remember receiving. Specifically, they will not consider a behavior change of tobacco cessation if they do not recall their provider addressing it with them. This finding supports the need for providers not only delivering verbal recommendations and interventions but also supporting their recommendations with written materials. Numerous patient materials are available at no cost to support providers' in-office interventions and many were developed in conjunction with the PHS guideline.[27,34,35]

The results of this study are consistent with prior publications and studies aimed at implementing the Guideline into standard, routine practice in the care of all patients.[16,18,36,37] The organizational system change in this study of using a Smoker Identification label and also sending emails and flyer reminders served as prompts or cues to action for providers and healthcare team members to address tobacco use with their patients. Prior studies report comparable results with using any type of similar reminders.[37-39]

Further research is needed in several areas. First, barriers need to be identified by all healthcare providers to include nursing, medicine, dentistry, and allied heath to further understand why the Guideline is not implemented in a consistent, systematic manner in all practice settings. Second, studies that address personal habits of all healthcare team members and their relationship to addressing tobacco and providing cessation recommendations with all patients is important. This study also supports the need for education and practice changes.

Regarding education and also supported by prior research, all healthcare providers need to have in their formal basic and advanced educational programs content and clinical experience on addressing

tobacco use with their patients.[13,18,28,31-33,39] All providers also need to be educated on the HEDIS criteria and that addressing cessation is an expected and critical performance measure. Numerous nursing programs do not include any didactic or clinical content specific to the health consequences of tobacco use and/or exposure. This lack of attention on health impairments from tobacco precludes the inclusion of education on the Guideline and the importance of addressing tobacco use with all patients.

Nurses, who comprise the largest group of healthcare professionals, need to make it a priority to address the global health issue of tobacco use to include efforts for prevention, successful cessation, and decreasing passive smoke exposure. These practice actions will only begin to occur in a global manner when tobacco is identified and addressed as a critical component of the formal educational process. For practicing nurses, the use of and/or exposure to tobacco impact nearly every disease entity that is treated and also frequently affect pharmacological interventions. Therefore, in order for nurses to provide the highest quality of holistic

healthcare, it is essential that tobacco use be assessed and treated per the Guideline recommendations. Nurses are in pivotal positions and located in numerous healthcare and academic settings to effectively address the many health-compromising behaviors related to tobacco use or exposure in their patient populations.

The recent release of the report of the Surgeon General states that tobacco affects nearly every organ in the human body.[40] This, in addition to the established devastating health costs attributable to tobacco use, urges all healthcare providers to seize every opportunity presented to them through each patient encounter to address tobacco use. Identification of tobacco status for all patients and implementation of the Clinical Practice Guideline with those who are users is critical if we are to make an impact for health. There are resources readily available to all healthcare professionals to assist patients with successful cessation to include the *Treating Tobacco Use and Dependence* Clinical Practice Guideline, telephone quit-lines, web-based education in using the Guideline, and numerous provider and patient brochures.[18,24-27,40-43]

Additionally, there is consistent documentation of the effectiveness of the Guideline, including patient success and cost-effectiveness.[13,18,41,44,45] All healthcare providers can and should become educated and active in assisting their patients with one of the most important health promotion and disease prevention decisions that they may ever have the opportunity to make for improving their personal health and those around them – the decision to not use tobacco.

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