Smoking Cessation Protocols in Ohio Hospitals

An Undergraduate Honors Thesis

Marjorie A. Ardito RRT, RCP

Respiratory Therapy Division, School of Allied Medical Professions

Advisor: Sarah M. Varekojis PhD, RRT

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Abstract

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Marjorie A. Ardito RRT RCP, Sarah L. Varekojis PhD RRT

BACKGROUND: The Clinical Practice Guideline for *Treating Tobacco Use and Dependence* has been shown to be a successful format for clinicians to provide smoking cessation, but there is no research to see how frequently the guideline is implemented in a hospital setting. OBJECTIVE: The purpose of this study is to describe the current practice regarding the use of inpatient smoking cessation protocols in Ohio hospitals, to determine if the protocols are based on the Guideline, and to determine if there are differences in practice. METHODS: A survey research design was utilized in this project. A survey instrument was developed The study population was every hospital registered with the Ohio Hospital Association. The survey instrument was mailed to a respiratory therapy director, or expert indicated by the director, who had knowledge of the current smoking cessation protocol in their hospital. The completed surveys were analyzed with SPSS®, utilizing descriptive statistics, t-tests, and chi square. RESULTS: 122 of the 170 Ohio hospitals consented to be sent the survey and 103 returned the survey, resulting in a 60.6% response rate. 78 hospitals (75.7%) had smoking cessation protocols. 36 (34.95%) were compliant with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. 38 of the 58 respondents (65.5%) stated they believed their protocol was based on the clinical practice guideline. Of those 38 hospitals, only 25 achieved a compliance score of 11 or greater (43.1%) and were truly compliant with the guideline. CONCLUSIONS: The majority of Ohio hospitals have inpatient smoking cessation protocols. Most Ohio hospitals are not taking advantage of the sound, established recommendations in the Guideline to efficiently and effectively address the problem of inpatient smoking cessation. If hospitals were to incorporate the recommendations for 4 interventions for a total of 30 minutes, they would be more likely to also be able to incorporate the 5As, the 5Rs, and discussions regarding pharmacotherapy, all of which seem to be missing from the non-compliant protocols. State-wide education to inform respiratory therapists, administrators and nurses of the usefulness and effectiveness of the Guideline is recommended.

Title

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Introduction and Statement of Problem

Cigarette smoking has been identified as the most important source of preventable morbidity and premature mortality worldwide[1]. Tobacco kills more Americans than AIDS, drugs, homicides, fires, and auto accidents combined[2]. Among adults, most smoking attributable deaths are from lung cancer, coronary heart disease, and chronic airway obstruction[1]. Along with smoking being responsible for approximately one in five deaths in the United States, it also costs the economy over $150 billion in annual health care costs[1, 3.] In particular, smoking causes about 445 new cases of lung cancer every day[3]. Along with the strenuous cost that smoking-related diseases put on the health care system, it also causes a huge decrease in individual productivity, which leads to further monetary loss. In addition to the $150 billion in annual health care costs, smoking costs for decreased individual productivity include $81.9 billion in mortality-related productivity losses and $75.5 billion in excess medical expenditures[1].

The Center for Disease Control coordinates state surveillance of cigarette smoking through the Behavior Risk Factor Surveillance System. Among the top five metropolitan statistical areas with the highest prevalence of current smoking were Toledo, Ohio and Cleveland-Lorain-Elyria, Ohio[1]. Also, in 2001 it was found that 27% of Ohioans smoke. Though smoking is a problem throughout the country and the world, the state of Ohio is of particular significance to researchers exploring issues related to smoking cessation.

Reducing tobacco-related morbidity and death is an ongoing challenge for health-care providers, health-care systems, and public health programs. As a part of the *Healthy People for 2010* initiative, goals have been developed to reduce tobacco-related morbidity and death by

decreasing smoking initiation and increasing smoking cessation. The goal established in the document is to decrease the percentage of adults that smoke from the baseline of 24% in 1997, to 12% in 2010. In order to see a decline in smoking prevalence, efforts must be intensified to promote smoking cessation[1]. A starting point in achieving this goal is for healthcare systems to assess current tobacco-use prevention and cessation[3].

According to the Center for Disease Control, 70% of smokers want to quit, but only 5% actually succeed every year[4]. Although most smokers in the US report that they want to stop smoking, more than 46.2 million adults continue to smoke as of 2001[1]. The Surgeon General of the United States declared in 1996 that tobacco dependence is a chronic disease and deserves treatment. Clinicians have a vital role to play in helping smokers quit[5]. Hospitalization represents a teachable moment for quitting and therefore smoking cessation should be a part of a patient's treatment and education while in a hospital setting[6]. According to the Surgeon General, if these patients quit, the result will show immediate and long-term improvements in their health[5].

In order to greatly diminish the prevalence of smoking, efforts must be intensified to promote cessation[1]. As a part of Healthy People in 2010, the Center for Disease Control recommends that healthcare providers identify, advise, and assist tobacco-using patients in cessation efforts[5]. According to the Clinical Practice Guideline, *Treating Tobacco Use and Dependence*, research shows that effective treatments for tobacco users exist and should become a part of standard care giving. The guidelines, first published in 1996 and then updated in 2000, are based on an expert panel's comprehensive and critical review of the evidence base for the management of tobacco-dependent patients[7]. The expert panel that formulated this guideline reported that the response from health care clinicians and the US health care system in general

was disappointing because health care systems did not offer smokers an effective assistance with quitting. The expert panel's recommendations support the implementation of hospital-based smoking cessation protocols in order to facilitate frequent advice on quitting that is provided by multiple health care providers. This is to assist the smoker in their cessation attempts through education and counseling[8].

The Clinical Practice Guideline *Treating Tobacco Use and Dependence* is an invaluable tool to healthcare providers to assist in the clinical practice of smoking cessation in a hospital atmosphere. The recommendations and the research supporting this guideline indicated that health care providers' advice to quit smoking is a reliable and persuasive message to patients about the risks of continued smoking and the benefits of quitting. The guidelines emphasize that effective tobacco-dependence treatments should be made available to all patients regardless of their stated willingness to quit[5]. The guidelines also acknowledge that while intensive interventions are often associated with better cessation outcomes, brief interventions can be effective as well. The weight of the evidence suggests that multi-component cessation programs wherein healthcare providers combine strong advice to quit with pharmacotherapy, ongoing support, and referral to additional cessation counseling assistance when needed can result in a two-fold increase in cessation rates[5]. Programs with the best success in smoking cessation outcomes are those that assist smokers not only in developing and using practical problem-solving and coping skills for dealing with urges, but also in seeking social support and encouragement from their social network and through a close partnership with a healthcare provider[7]. The guidelines summarize the strong literature base for the use of effective pharmacotherapies for all smokers attempting smoking cessation, except those with specific medical contraindications[5]. These pharmacotherapies have been shown to be cost-effective and

beneficial to increase long term cessation[7]. The Agency for Health Care Policy and Research estimates that widespread implementation of the smoking cessation guideline will double the annual quit rate, and therefore save the healthcare system $2.6 billion in smoking related health care costs[8].

A major barrier to effective implementation of the Clinical Practice Guideline *Treating Tobacco Use and Dependence* is that many primary care practices as well as hospitals do not have systematic protocols to identify patients who smoke or to encourage clinicians to provide smoking cessation advice[9]. In a poll of one hundred randomly selected US hospitals, only 30% of hospitals provided smoking cessation information to their patients[10]. Though the Clinical Practice Guideline has been shown to be a successful format for smoking cessation[8], there is no research to see how frequently the guideline is actually implemented as a component of standard patient care in a hospital setting.

The purpose of this study was to describe the current practice regarding the use of inpatient smoking cessation protocols in hospitals as a part of standard patient care, and to determine if the protocols are based on the Clinical Practice Guideline *Treating Tobacco Use and Dependence*. This study also determined if current practice differs by hospital location (urban vs. rural hospitals), region of the state (from Ohio Hospital Association), the size of are center (number of patient beds), and hospital type (teaching vs. community). The results of this study will be used to conduct further studies on the efficiency and effectiveness of smoking cessation education in hospitals.

Related-Research

A study was conducted by Hymowitz et al[11] in 1988 to identify variables predictive of smoking cessation in a cohort study of cigarette smokers over five years. This study showed that the majority of the participants struggled unsuccessfully to quit smoking on their own despite the fact that most smokers expressed a strong desire to stop smoking. In the course of the five-year study, 67% of smokers reported having made one serious attempt to quit, but only 33% were considered to have quit smoking. The most common reasons for having quit smoking were concern for health, expense, exposure to secondhand smoke, and the desire to set a good example for others. Those that were successful in smoking cessation tended to be male, older age, higher income, less frequent alcohol intake, lower levels of daily cigarette consumption, longer time to first cigarette in the morning, consumption of premium cigarettes, initiation of smoking after age 20, history of past attempts, a strong desire to stop smoking, and the absence of other smokers in the household[11].

In a study conducted by Hajek et al[12] in general cardiac patients, the authors concluded that abstinence from smoking can dramatically reduce the likelihood of readmission to the hospital. The study found that considerable health benefits follow from even short term abstinence, especially in patients undergoing surgery. In this study, the signing of a dated commitment-to-quit card was strongly associated with successful abstinence. The commitment card was included in the smoking cessation intervention because the authors believed that formalizing the attempt to quit in this manner would be beneficial. The results from this study suggest a dose-response relationship with regard to the intensity of the intervention, with the most successful results in cardiac patients occurring with an intervention consisting of eight contacts taking a total of three and a half hours[12]. This evidence matches the research done by

the Surgeon General in order to develop the Clinical Practice Guideline. There is much evidence in this study as well as others indicating that in-hospital interventions provide a positive outcome in regards to smoking cessation[12].

In a study conducted by McBride et al[7], the authors found that standard smoking cessation programs often suggest a process of a period of days or weeks during which smokers keep track of smoking behaviors, identify smoking triggers, take stock of personal motivators, all directed at setting a quit date. They also found that smoking cessation interventions increase perceptions of personal risk and related expectations of positive or negative outcomes, prompt strong emotional response, and redefine a patient's self-concept and social role. Thus clinicians and healthcare systems are well positioned to take advantage of this opportunity to build on patients' perceptions of personal vulnerability, emotions such as fear or hope, and changes in self-concept to emphasize the importance of smoking cessation[7].

Prochaska & DiClemente[13] studied the process of 872 self-changers who were in one of the following stages of change of their smoking habit: pre-contemplation of the prospect of quitting smoking, contemplation of quitting, the action of quitting, maintenance of remaining smoke-free and relapse back into their smoking habit. They determined that smokers use ten processes of change as they move through the stages of change. The processes of change include consciousness raising of the problems that smoking causes, self liberation to become tobacco free, social liberation from places and situations that would tempt one to smoke, self-evaluation of why they smoke, environmental evaluation of how they can avoid smoking, counter-conditioning (change in lifestyle to facilitate successful cessation), stimulus control (avoiding triggers), reinforcement management, dramatic relief and helping relationships(social support).

As Prochaska & DiClemente[13] predicted, individuals emphasized consciousness raising the most in the contemplation stage. By informing patients of the risks to their health and wellness from continued smoking, health care providers can help patients realize that the quicker they take action the better. Self-re-evaluation appears to link contemplation and action. Self liberation is emphasized when subjects take action, as are helping relationships and reinforcement management. Counter-conditioning and stimulus control appear to bridge action and maintenance since the patient must change their lifestyle to avoid triggers that may tempt them to return to their smoking habit.

The research conducted by Prochaska & DiClemente[13] suggests that once a patient is in the contemplation stage, they are most likely to respond to feedback and education as sources of information about smoking. Along with this increased openness to information about smoking, contemplators also report feeling and thinking more about themselves in relationship to their problem behavior. Rather than emotional experiences moving people to act, the results of their research suggest that it is a combined cognitive and affective reevaluation process that carries patients from contemplation into action[13]. This is further proof that when patients are contemplating quitting is an appropriate time to intercede with smoking cessation interventions. Those patients in the beginning stages of change are the most likely to respond to an intervention, and once they are in the contemplation stage, they are susceptible to influence through consciousness-raising[13].

An admission to a hospital provides an opportunity to help people stop smoking. A study by Manufo et al[14] found that individuals may be more open to help at a time of perceived vulnerability, and may find it easier to quit in an environment where smoking is restricted or prohibited. This study shows that providing smoking cessation services during hospitalization

may help more people attempt and sustain an attempt to quit. The results of this study support the use of smoking cessation interventions delivered during the hospitalization period that also include follow up for at least 1 month after discharge[14].

The Clinical Practice Guideline *Treating Tobacco Use and Dependence*[8] was developed through the employment of a science-based methodology along with the use of expert clinical judgment. Extensive literature searches were conducted and critical reviews and syntheses were used to evaluate empirical evidence and significant outcomes. Peer review was undertaken to evaluate the validity, reliability, and utility of the guideline in clinical practice. The developing panel felt the treatment of tobacco use and dependence presents the best opportunity for clinicians to improve the lives of millions of Americans nationwide in a cost-effective manner[8].

Research presented in the 1996 and 2000 Clinical Practice Guideline[8] highlights the importance of physician-based smoking cessation interventions to reduce tobacco use and demonstrates the potential effectiveness of treatment options and brief clinical interventions. Despite these findings, a study by McMenamin et al[15] suggests that many smokers are not receiving the most basic smoking cessation interventions from their physician[15]. Since approximately 70% of all smokers visit their physician each year, healthcare professionals are missing a key opportunity to provide effective smoking cessation interventions. In today's complex healthcare environment, it is important to consider the context within which tobacco dependence treatment is embedded. In the study by McMenamin et al[15], approximately 70% of physician organizations offered some support for smoking cessation interventions. Specifically, 17% of organizations require physicians to provide interventions, 15% evaluate interventions, 39% offer smoking health promotion programs, 25% provide nicotine replacement therapy starter kits, and materials are provided by the organizations on pertinent topics like

pharmacotherapy (39%), counseling (37%), and self-help (58%). This article also stated that previous research has shown that organizational practices that support physician-based smoking cessation interventions influence physician delivery of smoking cessation interventions and positively impact patient smoking behavior[15].

This study's authors also believe that in order to effectively reduce tobacco use in the population, the systems approach in treating tobacco use and dependence recommended in the 2000 Guideline must be implemented. This systems approach should include the following evidence-based recommendations targeted at physician organizations: 1) every clinic should implement a tobacco-user identification system; 2) education, resources, and feedback to promote provider interventions should be provided; and 3) clinical sites should dedicate staff to provide tobacco dependence treatment and assess the delivery of this treatment in staff performance evaluations[15].

There have been many studies to indicate the effectiveness of smoking cessation programs within a hospital setting. An update on the evidence base and key recommendations of the Health Education Authority of Great Britain was conducted in 2000 by West et al[16]. The expert panel recommended that during routine consultation in the hospital setting, doctors should advise smokers to quit by giving advice and prescribing effective medications to help aid in cessation. They panel advised that all health care professionals should encourage smokers to use nicotine replacement therapy as an aid in cessation. They recommended that primary health care teams and hospitals should create and maintain readily accessible records on the current smoking states of patients, and that doctors should aim to advise smokers to stop, and record having done so. The study by West et al recommended that brief advice from a doctor given to all smokers to encourage them to make an attempt to quit is effective in promoting smoking cessation.

The study by West et al[16] showed that 40% of smokers make some form of attempt to quit in response to advice from a general practitioner. Brief opportunistic advice involves asking patients about their current smoking, advising them to stop, offering assistance by way of supplying them with a prescription for nicotine replacement therapy, and arranging follow up where appropriate. This study found that lack of time and difficulties in raising the issue when uninvited appeared to be major barriers. The authors indicated that some research has indicated that many doctors are concerned that uninvited advice to stop smoking may damage their relationship with the patient. But this study found that smokers may be more receptive to advice to stop when it is linked with an existing medical condition. This study's authors estimated that if every doctor were to advise 50% of their smoking patients to stop once in a given year, about 55,000 smokers would be lead to stop smoking long term. If doctors were to include nicotine replacement therapy as a part of their advice to quit, an estimated 27,000 more smokers would stop smoking long term. Much like the recommendations in the US Clinical Practice Guideline for smoking cessation, the study in Great Britain recommends setting a definite quit date within 1-2 weeks of the first consultation and emphasizing complete abstinence as the goal[16].

Although a great deal of effort has been devoted to the development of evidence-based practice guidelines at both the national and local levels, relatively few studies have explored translating these guidelines into clinical practice. A study conducted by McDaniel et al[17] in 1999 assessed the feasibility of the clinical practice guideline for inpatient smoking cessation interventions. In the study, all smokers who were referred to a cardiac rehabilitation program were eligible for a smoking cessation program based on the guidelines. There were 20 patients in the program and the sum total of the interventions lasted 43.5 minutes. The results of the study found that at one month, 70% of the participants reported continuous abstinence from

tobacco. The authors also found that the average cost per patient for the smoking cessation intervention was minimal. This study showed that an inpatient smoking cessation intervention that follows the Clinical Practice Guideline was efficient as well as cost effective[17].

Methodology

Study Objectives and Research Objectives

The purpose of this study was to describe the current practice regarding the use of inpatient smoking cessation protocols in hospitals as part of standard patient care, and to determine if existing protocols are based on the Clinical Practice Guideline *Treating Tobacco Use and Dependence*. This study also determined if current practice differs by hospital location (urban vs. rural), region of the state (from Ohio Society for Respiratory Care), the size of are center (number of beds), and hospital type (teaching vs. community hospital). The following research questions was addressed in this study:

1. What percentage of Ohio hospitals have inpatient smoking cessation protocols?

2. Which healthcare providers(s) are involved in the administration of the inpatient protocol?

3. What percentage of Ohio hospitals have inpatient smoking cessation protocols that are compliant with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*?
    a. Document smoking status in the inpatient medical record.
    b. Identify smoking status every time the patient is admitted to the healthcare facility.
    c. Offer counseling, treatment or both to every patient that admits to smoking.
    d. Apply the five A's to those patients that express a desire to quit.
    e. Apply the five R's to those patients that do not express a desire to quit.
    f. Provide counseling and encouragement to former smokers.
    g. Provide a variety of types of pharmacotherapies to help patients quit smoking.
    h. Provide at least 4 interventions.
    i. Provide at least 30 minutes of counseling and treatment.
    j. Continue counseling patients after discharge.
4. What percentage of Ohio hospitals are aware that they are following the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*?

5. Is there a difference in practice based on hospital location (urban vs. rural), region of the state (from Ohio Hospital Association), size of facility (defined by the number of beds), and hospital type (teaching vs. community)?

Study Design and Procedure

A survey research design was employed to answer the research questions identified above. A survey instrument (Appendix A) was designed to assess current practice related to smoking cessation protocols in Ohio hospitals. The survey instrument was mailed with an accompanying cover letter (Appendix B) and postage-paid return envelope to a contact person identified by the researcher through a telephone interview with every hospital in Ohio. This person was a respiratory therapist with knowledge of the smoking cessation practices in the facility. Contact was initiated with the respiratory therapy department director, and if they determined they were not the appropriate therapist to complete the survey, they were asked to recommend an appropriate individual. If contact was not made with a hospital upon first telephone call, a message was left by the researcher by voicemail or answering machine if applicable, which contained the purpose of the study and information to contact the researcher. If contact was not made with the hospital upon first phone call, and there was no response from the hospital, up to two additional calls (for a maximum number of three attempts) were made to ask for consent to send the survey. All hospitals that the researcher was unable to speak to by phone, and were unresponsive to voicemail or answering machine messages, (after three attempts) were considered not to consent to be sent the survey and were not included in the results of this study.

The cover letter (Appendix B) identified the researcher as well as reminded the contact of their agreement to participate in the study. The cover letter provided additional information to the contact regarding the purpose of the study, the importance of completing and returning the survey instrument, assurances of confidentiality, a promise to share the study results, and a deadline for returning the survey instrument two weeks from the date the packet was mailed.

Each survey instrument was number-coded in order to track responders and to facilitate follow-up with non-responders. Three weeks after the first packet of survey materials was mailed to the contact person, a phone call was made to non-respondents. Five weeks after the first packet of survey materials was mailed, a telephone call or email reminder was made to non-responders, again stressing the importance of their participation and offering to resend the packet of survey materials if they have misplaced the materials. If the non-respondent admitted to misplacing or losing the survey they were sent a new one. If these efforts to elicit responses from the care center were unsuccessful, the care center was considered a non-responder for the purposes of this study.

Study Population

The Center for Disease Control coordinates state surveillance of cigarette smoking through the Behavior Risk Factor Surveillance System. Among the top five metropolitan statistical areas with the highest prevalence of current smoking were Toledo, Ohio and Cleveland-Lorain-Elyria, Ohio[1]. Because of this, the researcher had taken a particular interest in Ohio's hospitals as the population for this study. The population that was included in this study consists of all hospitals registered with the Ohio Hospital Association. The researcher contacted each hospital and determined the appropriate contact person capable of completing the survey instrument. All further correspondence with the hospital regarding the study was conducted through the contact person.

Instrumentation and Data Analysis

A survey instrument (Appendix A) was developed to address the research questions described above. The survey instrument addressed aspects of hospital-based smoking cessation interventions, and included questions regarding the hospital location and type, region, and the hospital's number of beds. The survey instrument was developed through careful review of related literature and consultation with respiratory therapists familiar with the subject of the instrument. Prior to distribution, the survey instrument was reviewed for clarity and face validity by a panel of experts with both content expertise and survey research methodology expertise.

A database was created using SPSS® (Statistical Package for the Social Sciences) containing the data collected via the survey instrument. Dummy-coding was used to record nominal and ordinal data in an effort to facilitate statistical analysis. For research question 3, protocols was considered compliant with the Guideline if their protocol contains 11 of the 16 (about 70%) recommended components of the Guideline. Appropriate descriptive statistics were be employed to address research questions 1 – 4, and appropriate descriptive statistics in addition to t-tests, chi square, as appropriate, were employed to address research question 5. The alpha level was set a priori at 0.05.

Results

The research project received institutional review board approval before any hospitals were contacted or survey instruments were mailed. Originally, 170 care centers were identified based on a listing from the Ohio Hospital Association. One hundred twenty-two centers were contacted and mailed surveys. Of the remaining 48 hospitals, 42 centers had no response to three separate telephone calls, 2 were incorrect or disconnected phone numbers, 1 was an outpatient surgery center, and 1 center claimed that it does not take part in any research. Six of the hospitals were identified by the contacts as affiliates of another hospital or were under the management of the same Respiratory Therapy department and therefore the same smoking cessation protocols. One hundred and three of the 122 care centers returned the survey. Thus, the response rate for this study was 60.6%. Not every center provided information on their demographics and type of facility as well as some did not answer all questions, so, the response rate is reported for each question.

The respondents were asked to classify the type of their hospital into one of three categories: teaching, community, or other. One hundred hospitals responded to this question; 27 indicated that they were a teaching facility, and 73 indicated that they were a community hospital. One hospital identified itself as an inpatient specialized orthopedic hospital. The respondents were asked to classify their hospital's location into one of three categories: urban, rural or other. Of the one hundred and one respondents to this question, 46 classified themselves as urban hospitals and 55 classified themselves as rural. Respondents were asked to write approximately how many beds are in their hospital. From that data we determined the size of the hospital as Small, Medium and Large. We determined that a hospital would be classified as small if it had one to 100 beds, it would be classified as medium sized if it had 101 to 400 beds,

and would be classified as large if it had 401 to 1000 beds. With all 103 respondents to this question, 33 were determined to be small hospitals, 54 were determined to be medium hospitals, and 16 were determined to be large.

The regions where each hospital is located was determined using the Ohio Society for Respiratory Care (OSRC) designations. The Society divided Ohio into Six Districts which have been numbered as follows Central (1), Eastern (2), Northeastern (3), Northwestern (4), Southern (5), and Western (6). Table 1 provides the breakdown of the number of centers per region.

Region	Number of Hospitals	Percent
1	29	28.2%
2	14	13.6%
3	15	14.6%
4	23	22.3%
5	13	12.6%
6	9	8.7%
Total	103	

Table 1. Frequencies of centers located within each of the 6 OSRC regions.

Inpatient Smoking Cessation Protocols

Seventy-eight of the 103 responding hospitals (75.7%) had inpatient smoking cessation protocols. Of the 25 hospitals that responded that they did not currently have smoking cessation protocols, two included information stating that they are in the process of creating a protocol.

HCPs That Administer Smoking Cessation Protocols

Respondents that indicated they have an inpatient smoking cessation protocol were asked to indicate which healthcare providers are involved in the administration of inpatient smoking

cessation protocols. Table 2 provides detailed information on the number and percentage of hospitals that utilize each health care provider to administer smoking cessation in their facility.

Health Care Provider	Number of Hospitals	Percent
Respiratory Therapists	71	91.0%
Nurses	61	78.2%
Doctors	27	34.6%
Health Education Specialists	11	14.1%
Other	13	16.7%
Total	78	

Table 2. Health Care Providers involved in the administration of inpatient smoking cessation protocols. (Respondents were asked to mark all that applied.)

Healthcare providers listed in the other category included four Pharmacists, a Case Management/Cardiac and Pulmonary Unit Clerk, an Occupational Therapist and an Exercise Physiologist.

Compliance with Clinical Practice Guideline

Compliance with the Clinical Practice Guideline was determined by asking a series of questions related to the components of the smoking cessation protocol at each hospital. A total of 10 questions were asked, and this translated into 16 components of the Clinical Practice Guideline. It was previously established that including 11 out of 16 components, or about 70%, was considered compliant with the guideline. Of the 78 hospitals surveyed that had existing protocols, 36 hospitals (46.2%) had protocols that were compliant with the Clinical Practice Guideline for Treating Tobacco Use and Dependence. The mean (± standard deviation) compliance score for all hospitals with smoking cessation protocols was 9.97 (±3.21) with the minimum score of two and the maximum being 15.

Detailed information on each of the components will be described below. Only the 78 hospitals with smoking cessation protocols is included. Seventy-five hospitals (96.2%) document patient smoking status in the inpatient medical record and seventy-one hospitals (91%) identify smoking status every time the patient is admitted to the healthcare facility. Sixty-five (83.3%)of the 78 hospitals with smoking cessation protocols offer counseling, treatment, or both to every patient that admits to smoking.

One of the components of the Clinical Practice Guideline is the five A's; Ask, Advise, Assess, Assist and Arrange. Table 3 shows how many of the five A's were used at the various Hospitals.

Number of five A's included in the Protocol	Number of Hospitals	Percent
1	5	6.4%
2	11	14.1%
3	14	17.9%
4	18	23.1%
5	30	38.5%
Total	78	100%

Table 3. Number of the five A's included in Smoking Cessation Protocols at each Hospital with Inpatient Smoking Cessation Protocols.

Though it was valuable to calculate the number of five A's used in each protocol in order to help calculate a compliance score, the researcher decided to provide details regarding which of the five A's are currently being used or not used by hospital protocols. Table 4 provides the number and percentage of hospitals that include each of the specific five A's in their smoking cessation protocol.

5 A's	Number of Hospitals	Percent
Ask	71	91.0%
Advise	64	82.1%
Assess	58	74.4%
Assist	56	71.8%
Arrange	42	53.8%
n	78	

Table 4. Frequency of inclusion of each of the specific five A's in the inpatient smoking cessation protocols.

Another component of the Clinical Practice Guideline is the five R's: Relevance, Risks, Rewards, Roadblocks, and Repetition. Table 5 shows how many hospitals used components of the five R's.

How many of the 5R's were applied during intervention	Number of Hospitals	Percent
0	7	9.0%
1	7	9.0%
2	12	15.4%
3	10	12.8%
4	14	17.9%
5	28	35.9%
Total	78	100%

Table 5. How many of the 5R's are applied at each Hospital

Though it was valuable to calculate the number of five A's used in each protocol in order to help calculate a compliance score, the researcher decided to provide details reguarding which of the five A's are currently being used or not used by hospital protocols. Table 6 shows the percentage of hospitals that use each of the five R's in their smoking cessation protocol.

5 R's	Number of Hospitals	Percent
Relevance	45	57.7%
Risks	55	70.5%
Rewards	57	73.1%
Roadblocks	38	48.7%
Repetition	62	79.5%
n	78	

Table 6. Frequency in utilization of each of the five R's.

Sixty-two of the 78 hospitals with inpatient smoking cessation protocols (79.5%) expressed that they provided counseling and encouragement to former smokers. Forty hospitals (51.3%) provide a variety of pharmacotherapies to help patients to quit smoking. Table 7 below provides details regarding the pharmacotherapies included in the protocols. In the "other" category, respondents indicated that the Nicotine Lozenge, the Commit Lozenge (a brand of Nicotine lozenge), and Valium were also NRT options available to patients.

Pharmacotherapies Used	Frequency of Utilization	Percent of Hospital Utilization
Nicotine Patch	37	47.4%
Nicotine Gum	31	39.7%
Bupropion	22	28.2%
Nicotine Inhaler	19	24.4%
Nicotine Nasal Spray	16	20.5%
Nortriptiline	2	2.6%
Clonidine	2	2.6%
Other	6	7.7%
Total	78	

Table 7. Pharmacotherapies included in Smoking Cessation Protocols. (Respondents were asked to mark all that applied.)

Of the 78 hospitals that had smoking cessation protocols, only 72 hospitals responded when asked how many smoking cessation interventions they include in their protocol. The Clinical Practice Guideline for *Tobacco Use and Dependence* recommends at least four interventions in order for the smoking cessation protocol to be effective. Only four of the 72 responding hospitals met or exceeded the required number of interventions. The mean number or interventions (±SD) of the 72 hospitals was 1.44 (±1.41) interventions with the minimum number being zero (meaning a hospital that did not require any number of interventions in their protocol) and the maximum number being eight. See Table 8 for the distribution of the number of interventions included in protocols.

Number of Interventions	Number of Hospitals	Percent
0	8	7.8%
1	44	42.7%
2	13	12.6%
3	3	2.9%
4	1	1%
5	1	1%
8	2	1.9%
Total	72	

Table 8. Number of interventions included in Smoking Cessation Protocols.

Of the 78 hospitals that had smoking cessation protocols only 68 hospitals responded when asked the number of total minutes of counseling and treatment were required by their guideline. Of those 68 hospitals, 15 were compliant with the 30 minutes of counseling and treatment recommended by the Clinical Practice Guideline. While conducting the data analysis, one outlier was identified (390 minutes). This outlier was excluded from the calculation of the mean in order to get a more accurate representation of the number of total minutes of treatment in the population surveyed. The mean (±SD) number of total minutes of treatment and counseling with one outlier removed was 15.31 (±14.86) minutes with the minimum being zero minutes (indicating that no set amount of time was required by the protocol) and the maximum of 390 minutes. Table 9 below shows the distribution of the number of total minutes of counseling and treatment included in smoking cessation protocols in Ohio.

Number of Total Minutes of Counseling/Treatment	Number of Hospitals	Percent
0	13	19.1%
5	8	11.8%
6	1	1.5%
10	11	16.2%
15	14	20.6%
20	6	8.8%
30	10	14.7%
60	4	5.9%
390	1	1.5%
Total	72	

Table 9. Total minutes of Counseling/Treatment included in Smoking Cessation Protocols.

Of the 78 hospitals that had a smoking cessation protocol, 58 replied to the question about arranging for continuing counseling for patients after discharge. Thirty-two of the 58 hospitals (55.2%) provided counseling and treatment after discharge.

Awareness of Compliance with Guideline

Fifty-eight of the hospitals with existing smoking cessation protocols responded to the question regarding whether they were aware that their protocol followed the Clinical Practice Guideline for Treating Tobacco Use and Dependence. Thirty-eight hospitals (65.5%) were aware that their protocol was based on the clinical practice guideline.

Additional data analysis was conducted to determine if those who thought their protocols were based on the guideline with the guideline were compliant with that guideline. Table 10 shows the breakdown of which hospitals were compliant or not and which one thought they were.

		Did the hospital think that they were based on the guideline?		Total
		No	Yes	
Compliance	No	16	13	29
	Yes	4	25	29
Total		20	38	

Table 10. Frequency if Hospitals stated that they were based on the guideline as compared with whether they were compliant.

Difference in Practice

This research question addressed "Are there differences in practice based on hospital location (urban vs. rural), region of state (from OSRC), size of facility (small, medium and large), and the hospital type (teaching vs. community)." Differences in practice included existence of inpatient smoking cessation protocols and compliance with the clinical practice guideline. There were no statistically significant differences in practice based on the above comparisons noted through the analysis of the data. The only analysis that approached a statistically significant difference was based on the hospital type. In general, there was a trend toward more community hospitals having smoking cessation protocols than teaching hospitals. One outlier (the other category, which included an inpatient specialized orthopedic surgery hospital) was removed from the data analysis of this demographic in order to accurately run the difference between teaching and community hospitals. From the data collected, it is evident that many community hospitals have (80.8%) smoking cessation protocols while in teaching hospitals have a much smaller percentage (62.3%) that have protocols.

SPSS chi-square output data for the above comparisons was included in Tables 11 through 18.

Crosstabulation

Count

		Existing Smoking Cessation Protocols		Total
		No	Yes	
Hospital Location	Urban	12	34	46
	Rural	13	42	55
Total		25	76	101

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.081(b)	1	.776	.820	.478	
Fisher's Exact Test				.820	.478	
N of Valid Cases	101					

Table 11. Existence of protocols based on hospital location (urban vs. rural.)

Crosstabulation

Count

		Protocols Compliant with the Guideline		Total
		No	Yes	
Hospital Location	Urban	19	15	34
	Rural	22	20	42
Total		41	35	76

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.093(b)	1	.761	.819	.471	
Fisher's Exact Test				.819	.471	
N of Valid Cases	76					

Table 12. Frequency in compliance based on hospital location (urban vs. rural.)

Crosstabulation

Count

		Existing Smoking Cessation Protocols		Total
		No	Yes	
Hospital Size	0-100	10	23	33
	101-400	11	43	54
	401-1000	4	12	16
Total		25	78	103

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.105(a)	2	.576	.574		
Fisher's Exact Test	1.197			.603		
N of Valid Cases	103					

a 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.88.

Table 13. Frequency of protocols based on size of facility.

Crosstabulation

Count

		Protocols Compliant with the Guideline		Total
		No	Yes	
Hospital Size	0-100	13	10	23
	101-400	25	18	43
	401-1000	4	8	12
Total		42	36	78

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2.417(a)	2	.299	.327		
Fisher's Exact Test	2.367			.327		
N of Valid Cases	78					

Table 14. Frequency in compliance based of size of facility.

Crosstabulation

Count

		Existing Smoking Cessation Protocols		Total
		No	Yes	
Regions	Central	7	22	29
	Eastern	5	9	14
	Northeastern	3	12	15
	Northwestern	4	19	23
	Southern	4	9	13
	Western	2	7	9
Total		25	78	103

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2.058(a)	5	.841	.848		
Fisher's Exact Test	2.226			.836		
N of Valid Cases	103					

a 4 cells (33.3%) have expected count less than 5. The minimum expected count is 2.18.

Table 15. Frequency in protocols based on region of the state.

Crosstabulation

Count

		Protocols Compliant with the Guideline		Total
		No	Yes	
Regions	Central	10	12	22
	Eastern	5	4	9
	Northeastern	8	4	12
	Northwestern	8	11	19
	Southern	7	2	9
	Western	4	3	7
Total		42	36	78

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	4.586(a)	5	.468	.485		
Fisher's Exact Test	4.543			.487		
N of Valid Cases	78					

a 6 cells (50.0%) have expected count less than 5. The minimum expected count is 3.23.

Table 16. Frequency in compliance based on region of the state.

Crosstabulation

Count

		Existing Smoking Cessation Protocols		Total
		No	Yes	
Hospital type	Teaching	10	17	27
	Community	14	59	73
Total		24	76	100

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3.446(b)	1	.063	.072	.058	
Fisher's Exact Test				.072	.058	
N of Valid Cases	100					

Table 17. Frequency in protocols based on hospital type (teaching vs. community.)

Crosstabulation

Count

		Existing Smoking Cessation Protocols		Total
		No	Yes	
Hospital type	Teaching	9	8	17
	Community	33	26	59
Total		42	34	76

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.048(b)	1	.827	1.000	.521	
Fisher's Exact Test				1.000	.521	
N of Valid Cases	76					

Table 18. Frequency of compliance based on hospital type (teaching vs. community.)

Additional Data Analysis

While conducting the data analysis, the researcher decided to explore possible connections between certain components of the smoking cessation protocols and their effects on the overall compliance score. T-tests were run on these components to determine if there were any statistically significant differences in mean scores of the number of interventions, total minutes of counseling/treatment, five A's and five R's between hospitals whose protocols were and were not compliant with the Clinical Practice Guideline. The first t-test compared the mean number of interventions that the protocols included. The thirty-three hospitals that were compliant with the guideline had a mean (±SD) total number of interventions of 1.73 (±1.941). The thirty-nine hospitals that were not compliant with the guideline had a mean (±SD) total number of treatments of 1.21 (±0.656). The difference in number of interventions was not statistically significant.

The next t-test compared the mean number of total minutes of counseling/treatment that the protocols provided. Thirty-two hospitals were compliant with the guideline and had a mean (±SD) total number minutes of counseling/treatment of 19.41 (±16.323). Thirty-five hospitals were not compliant with the guideline that had a mean (±SD) total number minutes of counseling/treatment of 11.57 (±12.472). This is a statistically significant difference ($p < 0.05$), indicating that protocols compliant with the clinical practice guideline included more time for counseling/treatment.

The mean number of the five A's included in the protocols were compared using a t-test for protocols that were and were not compliant with the clinical practice guideline. The 36 protocols that were compliant with the guideline had a mean number of five A's included (±SD) of 4.72 (±0.454) while the 42 protocols that were not compliant had a mean number of five A's

included (SD) of 2.88 (1.152). The mean number of five A's included is statistically significantly different, with compliant protocols including more of the five A's.

The mean number of the five R's included in the protocols were compared using a t-test for protocols that were and were not compliant with the clinical practice guideline. The 36 protocols that were compliant with the guideline had a mean number of five R's included (±SD) of 4.5 (±0.697) while the 42 protocols that were not compliant had a mean number of five A's included (±SD) of 2.26 (±1.624). The mean number of five R's included is statistically significantly different, with compliant protocols including more of the five R's.

Conclusions

The majority of Ohio hospitals currently have inpatient smoking cessation protocols. The implementation of protocols was more common in community hospitals rather than teaching hospitals. This was an unexpected result due to the fact that you would think that teaching hospitals would have protocols to maintain continuity of care even with the ever-changing house staff that circulates through a teaching institution. But on the other hand, the development of protocols may be hindered by the monthly rotation of staff members to agree on the implementation of such protocols. Community hospitals have a more permanent staff, and would be more likely to develop protocols due to healthcare providers having the ability to meet with each other to develop a protocol that works for their hospital.

There was no difference in the existence of protocols based on region, location, or size of hospital. Since there was no difference between the groups, it is apparent that in order to address the problem of those hospitals that do not have protocols, we need to address the problem from a statewide perspective. For the hospitals without protocols, we need to make them aware that according to studies like that of Hajek et al[12], in-hospital smoking cessation interventions show a positive outcome on smoking cessation. These hospitals need to address the problem of inpatient smoking status in order to play their part to achieve the goals of Healthy People in 2010[5], to reduce the number of smokers in America.

According to the findings of this study, respiratory therapists and nurses are the practitioners that spend the most time at the bedside, and are frequently involved in the administration of the smoking cessation protocols. Although Physicians, Health Education Specialists, and other Healthcare Providers were involved in some hospital's smoking cessation protocols, they were not involved in nearly as many protocols as RTs and RNs. It was

encouraging to note that respiratory therapists play a very important role in the smoking cessation protocols. It is imperative that respiratory therapists continue to be actively involved as patient educators and to promote themselves as important resources for smoking cessation counseling.

Respiratory Therapists are more than appropriate to provide smoking cessation education because of their expertise on how smoking affects the respiratory system, and for patients that are receiving respiratory care for their current ailment; the therapist can address how quitting smoking would improve their overall respiratory health. Nurses are at the bedside the most out of all healthcare providers, and patients respect their opinions and advice on how to improve their health. According to the results of this study, physicians are not taking as active a role as they should to provide smoking cessation advice and education. The study by West et al[16] recommended that brief advice from a doctor given to all smokers to encourage them to make an attempt to quit is effective in promoting smoking cessation. Physicians need to take a more active role in smoking cessation protocols in Ohio hospitals because patients respond to their counseling.

Of the hospitals that have existing protocols, less than half have protocols that are compliant with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. This is a significant problem because the Clinical Practice Guideline has been shown to be effective and hospitals are not using this method to promote smoking cessation in their protocols. Ohio hospitals are not taking advantage of sound, established recommendations to efficiently and effectively address the problem of inpatient smoking cessation. Though many hospitals have existing protocols, they need to improve their compliance in order to achieve the effectiveness of the Clinical Practice Guideline. Due to the fact that there was no difference in the compliance of

protocols based on region, type, location, or size of hospital, the state of Ohio needs to address this problem as a whole state and not focus on certain hospital demographics.

Compliance with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence* was determined as including 11 out of 16 components (70%) in the protocol. Of all of the hospitals with smoking cessation protocols, the mean compliance score was 9.97, which shows that as a group, Ohio hospitals are not compliant with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. In the analysis of the data collected to calculate a compliance score, we concluded that most hospitals in Ohio document patient smoking status in the inpatient medical record, and identify smoking status every time the patient is admitted to the healthcare facility. Most hospitals offer counseling and/or treatment to every patient that admits to smoking, and provide counseling and encouragement to former smokers. These are all good components to include but they only the first steps to actually providing effective smoking cessation advice and counseling. The bulk of the treatment that is recommended by the guideline to influence patients to quit smoking is the counseling and pharmacotherapies components.

Where the hospitals start to decline in their compliance score is the lack of use of the five A's (Ask, Advise, Assist, Assess, Arrange) and five R's (Relevance, Risk, Rewards, Roadblocks, Repetition) to intervention, and the lack of utilization of pharmacotherapies. The five A's were designed to help guide healthcare professionals to counsel patients that are willing to quit smoking. Most hospitals protocols asked about patient's smoking status every time they were admitted to the healthcare facility, advised the patient to quit, assessed the willingness of the patient to make a quit attempt, and assisted the patient in their quit attempt with counseling and pharmacotherapies. The most underutilized of the five A's to intervention was arranging follow-up contact with the patient. As confirmed by Manufo et al[14], follow up contact is important to

provide because patients need reinforcement of why quitting is going to improve their health status in order to reaffirm their quit decision. It has been shown that follow up contact needs to be initiated and Ohio hospitals need to require follow-up in their protocols to complete the cessation advice and counseling.

The five R's to intervention were designed to help guide healthcare providers to counsel patients who do not desire to quit smoking. Most hospital's protocols identified personal negative consequences and risks of continued smoking, identified personal benefits and rewards of quitting, and repeated the benefits of quitting in order to encourage the decision to quit. The most underutilized of the five R's to intervention was that most protocols did not encourage the patient to indicate why quitting was personally relevant, and did not identify personal barriers or roadblocks to quitting. As shown by Prochaska & DiClemente[13], informing patients of the negative effect to their health and wellness can help them to realize that the quicker they take need to take action to quit smoking. Also, Prochaska & DiClemente[13] emphasized that the smoker would need to remove themselves from situations in which barriers to smoking would be prevalent. Their studies have shown the importance of these steps, but Ohio hospitals are not implementing them. In order to have effective intervention with a person who is unwilling to quit smoking, healthcare providers need to be as persuasive as possible to convince them to quit, and the best recommendation is to complete the guideline which has been shown to work.

From the data collected, it is evident that the use of the five A's and five R's have a profound effect on the compliance score. Protocols that included more of the five A's and R's were more likely to be compliant with the guideline than those with less. This is a problem because most hospitals are not providing complete counseling to patients that are both willing and unwilling to quit smoking. The study by West et al[16] reaffirms the fact that patients do need

to be advised or counseled by the healthcare team in order to facilitate cessation. The five A's and R's provide the majority of the counseling that is recommended by the guideline, and in order to reach the goals of the guideline in providing effective smoking cessation counseling and treatment to patients, it is essential for hospitals to include these components.

Of the hospitals with inpatient smoking cessation protocols, about half provide pharmacotherapies to help a patient to quit smoking. The pharmacotherapies that most hospitals in Ohio provide to help patients quit smoking are Bupropion, Nicotine Gum, Nicotine Inhaler, Nicotine Nasal Spray and the Nicotine Patch. Other pharmacotherapies such as the Clonidine, Nortyptiline, and the Nicotine Lozenge are used in only a small amount of Ohio hospitals. The study by West et al[16] confirms that nicotine replacement therapy is an effective aid in cessation. Hospitals need to at least offer this therapy through their guideline to their patients in order to aid in the patients quit attempt.

Overall, the majority of hospitals do not provide enough interventions; four interventions are suggested by the guideline. The mean number of interventions of all Ohio hospital's with current inpatient smoking cessation protocols was 1.44. This is less than half of the number of interventions recommended by the guideline. Also, the majority of hospital's protocols do not provide enough time; 30 minutes total is suggested by the guideline (for counseling and treatment to patients on smoking cessation.) The mean number of total minutes of treatment of all Ohio hospital's with inpatient smoking cessation protocols is 15.31 which is about half of the amount of time recommended by the guideline. West et al[16] confirms that lack of time is a significant barrier to providing smoking cessation advice. Lack of time is a problem in the implementation of the components of the guideline because if healthcare providers are not required to spend enough time and interventions with the patient, they are less likely to

effectively counsel the patient to quit smoking. The Clinical Practice Guideline recommends 30 minutes, but in a study by McDaniel et al[17] they found that 70% of smokers in the study had quit after receiving 43.5 minutes of counseling. The average Ohio hospital is falling far short of that, and healthcare providers are going to have to spend more time with their patients to meet more of the components of the guideline, to promote more aggressive and effective cessation counseling and treatment. If hospitals were to incorporate the recommendations for 4 interventions for a total of 30 minutes, they would be more likely to also be able to incorporate the 5As, the 5Rs, and discussions regarding pharmacotherapy, all of which were missing from the non-compliant protocols.

When asked if their hospital's protocol is based on the clinical practice guideline, over half of the respondents stated that they believed their protocol was based on the guideline. However, according to the results of this study, less than half that claimed they were based on the guideline were actually compliant with the guideline. One fifth of the hospitals stated that were compliant actually were not. It is apparent from this data that hospitals seem to be unaware if their current inpatient smoking cessation protocol is based on Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. Guideline, possibly because they are uninformed about the detail or specificity of the guideline, they are unacquainted with the many components of the guideline, or they are truly unaware of the guideline. This problem needs to be addressed in order for more protocols to be compliant with the guideline. The first step is to make hospitals and healthcare providers aware of the Clinical Practice Guideline and its specifications. Then they need to be informed that all components of the guideline are necessary for the guideline to be effective and that they need to incorporate the number of interventions and the recommended

amount of time to provide the specific counseling and treatment that is recommended by the guideline.

Discussion

To achieve the goals of the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*, which is to provide smoking cessation education in an efficient and effective manner when a patient's health status is very relevant, healthcare providers need to provide interventions that are compliant with the guideline. In order to do so, hospital's smoking cessation protocols need to require healthcare providers to provide 30 total minutes of treatment and/or counseling in four or more interventions. They need to apply the five A's and R's to the patients as a part of their counseling, and offer pharmacotherapy to assist in the patient's quit attempt. If hospitals are lacking in the counseling and treatment of their smoking patients they are neglecting to treat a relevant part of their patient's health status. All hospitals should have protocols to address this problem, and all protocols should be compliant with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*.

This study has shown that Respiratory Therapists play a significant role in smoking cessation protocols. It was encouraging to note that respiratory therapists play a very important role in the smoking cessation protocols. It is imperative that respiratory therapists continue to be actively involved as patient educators and to promote themselves as important resources for smoking cessation counseling. While this is a good thing, Respiratory Therapists need to educate other respiratory therapists as well as other health care providers about smoking cessation education. Respiratory Therapists should be at the core of smoking cessation protocols and education because the patient's smoking status directly effects their respiratory health and it

should be part of their treatment to help them quit smoking. Respiratory Therapists should strive to achieve the credential of Smoking Cessation Facilitator in order to heighten their expertise on the topic of smoking cessation and should teach other HCPs how to apply these principles in their smoking cessation counseling. The credential Smoking Cessation Facilitator can be obtained through the American Lung Association and is recommended for all Respiratory Therapists in Ohio as well as other Health Care Providers.

It is apparent from this study that, in general, hospitals are unaware if they are truly based on the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*, because if their protocol was based on the guideline, then it should be compliant with it. In order to solve the problem of perceived versus actual compliance, each hospital needs to compare their individual protocol with the guideline to confirm or deny whether they are truly compliant. For those who are not compliant, they can use the Guideline to reform their protocol to become compliant.

Although most Ohio hospitals currently have inpatient smoking cessation protocols, only half of those hospitals with protocols are compliant with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. From the results of this study, it seems that most hospitals include the parts of the guideline that do not take much time with the patient or that can be done easily and quickly on admission or discharge. Those tasks that do not take much time for the healthcare provider to complete are: documenting patient smoking status in the inpatient medical record, identifying smoking status every time the patient is admitted to the healthcare facility, offering counseling and/or treatment to every patient that admits to smoking, and providing counseling and encouragement to former smokers. On the other hand, those tasks that take more time to achieve and are more costly to include, such as the five A's to intervention in patients that expressed an interest in quitting smoking, the five R's in those who are unwilling to

quit at this time, and providing pharmacotherapies to assist a patient to quit smoking, are not incorporated into the protocol.

If hospitals were to require healthcare providers by the protocol to provide the 30 minutes of counseling and treatment recommended by the guideline, they would possibly be more likely to complete the five A's and five R's. With these additions, hospitals have a much better chance of being compliant with the guideline as well as providing more effective smoking cessation advice. Although the number of interventions was not found to make a difference in compliance score, it is obvious that if healthcare providers only meet with the patient once they are not providing the repetition and reinforcement required to keep patients committed to their decision to quit. Multiple interventions with shorter amounts of time per session, as opposed to a few interventions that are quite lengthy, would be more effective because the protocol could still meet the time requirement while meeting the requirements for repetition, reinforcement and follow-up.

Healthcare providers might say that it is too costly to provide the recommended 30 minutes of treatment with a patient. But smoking related diseases have cost the economy over 150 billion dollars in annual healthcare costs[3]. If healthcare providers are able to provide counseling and treatment to inpatients that admit to smoking, then they have a better chance of quitting, and less of a chance of developing a smoking related disease. Providing smoking cessation advice during hospitalization is a good idea because it is addressing the patient's smoking status when their health status is relevant. If healthcare providers put the time and money in now to address inpatient smoking cessation, they will be saving themselves and the hospitals less time and money in the long-term by decreasing the likelihood that the patient will be readmitted for smoking related disease.

The Clinical Practice Guideline for *Treating Tobacco Use and Dependence* has been shown to be effective in helping smokers to quit, but this study shows that the hospitals in Ohio are not using it frequently enough. The National Health and Medical Research Council created a handbook that is called "A Guide to the Development, Implementation and Evaluation of Clinical Practice Guidelines"[18]. This handbook focuses on the issue of how to change clinical practice through dissemination and especially implementation of clinical guidelines or other evidence-based information. Clearly, clinical practice guidelines can not achieve their stated purposes if clinical practice does not change and outcomes do not improve. The researcher would recommend this handbook, both for those who are developing inpatient smoking cessation protocols and for those who have protocols that are not compliant with the Clinical Practice Guideline and need to revise and reconsider how to make their protocol more efficient and effective.

In addition, the researcher would also recommend a statewide education program to make hospitals managers and healthcare providers aware of the components of the Clinical Practice Guideline. This would help to make hospitals aware of where their protocols are deficient and how to improve them. Most of the above suggested improvements could be addressed through state-wide education for respiratory therapy department managers, respiratory therapists, physicians, hospital administrators and nurses that included how to implement clinical practice guidelines and the effectiveness and the specific recommendations of the Guideline.

Limitations

Since a survey research method was used, there are limitations to the validity of the study results because it is dependent upon the respondent's ability to provide accurate answers to the questions on the survey. It is assumed that the respondent was able to provide valid information because the researcher asked the respondent in the telephone interview if they had knowledge of the current inpatient smoking cessation practices at their hospital. Also, since the researcher had to receive consent from the participants of this study, many hospitals were eliminated from the study simply because that the researcher was unable to personally speak with a contact after three attempts to make contact. Since the study population was restricted to Ohio, the results are not generalizable.

Recommendations for Further Research

While this study provided an important overview of the current practices regarding inpatient smoking cessation protocols in Ohio hospitals, it also provides an important basis for future research. It would be important to redo this study in five years, to see if the results of this study were effective motivation for Ohio hospital's to develop and reform current protocols.

This study would be important to repeat in a larger population such as across the United States. It would be informative to see how hospitals current practices in smoking cessation protocols differ across different geographic and cultural regions as well as to compare the completeness of protocols in "nonsmoking" states compared to "smoking" states.

Several findings should be explored further, including why protocols are not compliant with the guideline and why some hospitals do not have current protocols. What are the barriers between the guideline and its implementation in a hospital setting? Are most hospital's protocols

based on other Clinical Practice Guidelines, and if so why isn't the Clinical Practice Guideline for *Treating Tobacco Use and Dependence* being utilized as frequently as the other Clinical Practice Guidelines? Would being able to charge patients for a smoking cessation sessions make healthcare providers and those who write the protocols more willing to allow time with their patients to administer the education to meet the guideline?

These are all important follow-up research questions that need to be addressed. If a state run organization (like the "Kick it" program) or the Ohio Society for Respiratory Care were to provide a seminar or in-service on how to develop Smoking Cessation Protocols that are compliant with the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*, would more hospitals develop protocols? And also would an education seminar or in-service encourage hospitals with noncompliant protocols to revise theirs to become compliant if they were informed on how to make it better?

It would also be important to explore the preparation of healthcare providers who complete the smoking cessation education provided by the current guidelines. Are they educated on the Clinical Practice Guideline and are they applying its principles when educating the patient?

I would recommend for future research that someone explore how hospitals with compliant protocols initiated these protocols into standard patient care. Would the implementation of their methods in hospitals without protocols or without compliant protocols be accepted and effective?

Appendix A

Center Number:_____

Smoking Cessation Protocols in Ohio Hospitals

Please answer the following questions to the best of your knowledge and return the completed survey in the postage-paid envelope included. Thank you.

GENERAL INFORMATION:

1. Which of the following most accurately describes your hospital?
   ___ A teaching hospital
   ___ A community hospital
   ___ Other:_____

2. Which of the following most accurately describes your hospital?
   ___ Urban
   ___ Rural

3. What county is your hospital located in?

   _____ county

4. Approximately how many beds does your hospital have?

   _____ beds

IN-PATIENT SMOKING CESSATION: Please answer the following questions regarding **in-patient** smoking cessation interventions offered by your hospital.

5. Does your institution have an in-patient smoking cessation protocol?

   _____ YES _____ NO*

   (* If you answered no, you have completed the survey. Please return this form in the postage paid envelope provided. Thank you.)

6. Which healthcare provider(s) are involved in the administration of the in-patient smoking cessation protocol? Please mark all that apply.
   ___ Respiratory Therapists
   ___ Physicians
   ___ Nurses
   ___ Health Education Specialists
   ___ Other:_____

7. Does the smoking cessation protocol include documentation of the patient's smoking status in the in-patient medical record?

   _____ YES _____ NO

8. Does the smoking cessation protocol include determining a patient's smoking status every time the patient is admitted to the healthcare facility?

   _____ YES _____ NO

9. Does the smoking cessation protocol include offering counseling, treatment, or both to all patients that admit to smoking?

   _____ YES _____ NO

10. For patients who DO express a desire to quit smoking, does the smoking cessation intervention specified in the protocol include the following? Please mark all that apply.

    _____ Advise the patient to quit in a clear, strong, personalized manner.
    _____ Assess the willingness of the patient to make a quit attempt at this time.
    _____ Assist the patient in their quit attempt with counseling and pharmacotherapy.
    _____ Arrange follow-up contact with the patient.

11. For patients who DO NOT express a desire to quit smoking, does the smoking cessation protocol include the following? Please mark all that apply.

    _____ Encourage the patient to indicate why quitting is personally relevant.
    _____ Identify personal negative consequences and risks of continued smoking.
    _____ Identify personal potential benefits and rewards of quitting.
    _____ Identify personal barriers or roadblocks to quitting.

12. Does the smoking cessation protocol include reinforcing the decision to quit and reviewing the benefits of quitting for recent quitters?

    _____ YES _____ NO

13. Does the smoking cessation protocol include providing a variety of types of pharmacotherapies to help patients quit smoking?

    _____ YES* _____ NO

    *If YES, please mark all that apply.

    ___ Bupropion SR
    ___ Nicotine Gum
    ___ Nicotine Inhaler
    ___ Nicotine Nasal Spray
    ___ Nicotine Patch
    ___ Clonidine
    ___ Nortriptyline
    ___ Other:_____

14. How many interventions are required in the smoking cessation protocol?

    _____ interventions

15. How many total minutes of counseling and treatment are required by the smoking cessation protocol?

    _____ minutes

16. Does the smoking cessation protocol include continued counseling for patients after discharge?

    _____ YES _____ NO

17. Is the smoking cessation protocol your institution follows based on the *Clinical Practice Guideline for Treating Tobacco Use and Dependence* developed by the U.S. Department of Health and Human Services?

    _____ YES _____ NO

Thank you for completing this survey.
Please return this form in the postage-paid envelope provided.

Appendix B

Current Date

Return Address

Dear _____:

Hello, my name is Marjorie Ardito and I am a respiratory therapy student at The Ohio State University. I am currently completing a research project under the direction of Sarah Varekojis of the Respiratory Therapy Division of The Ohio State University, aimed at determining the current practice regarding the use of for smoking cessation protocols in hospitals as a part of standard patient care, and determining if existing protocols are based on the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. Based on my review of literature, the guideline has proved to be a successful for healthcare providers, but my aim is to assess whether it is being implemented in smoking cessation protocols in hospitals throughout the state of Ohio.

Based on telephone contact with your center on _____ you have been identified as having knowledge of the smoking cessation practices in your hospital. I would greatly appreciate you taking a few minutes of your time to complete the following survey. Please answer the questions to the best of your knowledge and to reflect your hospital's policies and practices. As you will notice, the survey is numbered; this number will serve merely as a means for follow-up with those who do not return the survey by the indicated date. Although I can not promise the anonymity of your responses, I can assure you that your responses will remain confidential.

I urge you to take the time to complete the questionnaire, as its results will serve to guide further research and help determine current practice regarding smoking cessation. As a benefit for your participating in this study, your hospital will be provided with the compiled results of this study. If you have any questions, please feel free to call or email my faculty advisor or myself. I look forward to receiving your reply by _____in the business reply envelope included.

Thank you for your time,

Marjorie Ardito
Ardito.1@osu.edu
614-296-3362

Sarah Varekojis
Varekojis.16@osu.edu
614-292-8445

Appendix C

Telephone Scripts:

1) First contact -

"Hello, my name is Marjorie Ardito and I am a student in the Respiratory Therapy program at The Ohio State University. I would like to speak with the Respiratory Therapy Department Manager. Could you please tell me the department manager's name and connect me to the Respiratory Therapy Department? Thank you."

Through this contact, I want to obtain a name, title, and means to contact by phone the Respiratory Therapy Department Manager. I will then ask to be transferred to the identified person.

2) Contact with participant -

"Hello, my name is Marjorie Ardito and I am a student in the Respiratory Therapy program at The Ohio State University. I am currently completing an honors undergraduate research project aimed at determining the current practice regarding smoking cessation protocols in hospitals as a part of standard patient care, and determining if existing protocols are based on the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. I am conducting the project under the supervision of the principle investigator, Sarah Varekojis, a faculty member at The Ohio State University. Do you have knowledge regarding the smoking cessation practices in your hospital?"

If yes: "I would like to mail you a short survey regarding the smoking cessation protocol in your hospital. What address should I use to send the survey?"

If no: "Is there a respiratory therapist in your department that has knowledge of the smoking cessation practices in your hospital? Is there another professional that has knowledge of the smoking cessation practices in your hospital? How would I contact that individual? What address should I use to send the survey to that individual?

At the time of the phone call I received verbal consent to send the survey through the mail. If the contact person indicated that their hospital does not have a current smoking cessation protocol, I filled out the fifth question of the survey (Does your institution have an in-patient smoking cessation protocol?) as "No" and I asked the participant the first four questions of the survey (demographics) over the phone. Participants that did not have a smoking cessation protocol were not be sent a survey. I asked the participant if they would like to give us their address so they can receive the results of the research. If they declined the survey, I asked if there is anyone else at the hospital that would be qualified to answer questions of the hospital's smoking cessation protocol. If there was no other contact, I

marked the center as not participating in the survey. I also gave the contact person Sarah Varekojis' and my contact information:

e-mail - svarekojis@amp.osu.edu and ardito.1@osu.edu,
address - Respiratory Therapy Department 1583 Perry St. Columbus OH 43210
phone numbers - 614-292-8445

If I was unable to make contact with the Respiratory Therapy Manager of a hospital on the first attempt I left a message on that persons voicemail saying;

"Hello, my name is Marjorie Ardito and I am a student in the Respiratory Therapy program at The Ohio State University. I am currently completing an honors undergraduate research project aimed at determining the current practice regarding smoking cessation protocols in hospitals as a part of standard patient care, and determining if existing protocols are based on the Clinical Practice Guideline for *Treating Tobacco Use and Dependence*. It is a four page, paper survey that I will send to you in the mail and it will take you about ten minutes to complete. If you are interested in participating in this study you can call me back at (614) 296-3362 or you can e-mail me at ardito.1@osu.edu. Thank you very much and have a nice day.

After three unanswered phone call attempts, the hospital will be considered not to consent to be sent the survey and will not participate in the study's results.

Appendix D

Follow-up Postcard for Non-responders:

Dear_____,

On _____ we spoke about a research project regarding the smoking cessation protocol in your hospital.

The survey entitled Smoking Cessation Protocols in Ohio Hospitals was mailed to you on _____. I would appreciate your response as soon as possible, as your facility's participation is important to ensure complete, accurate and valid study results.

Thank you for your time!
We look forward to your response to the survey!

If you have any questions or need another copy of the survey please contact:

Marjorie Ardito
Respiratory Therapy Student
ardito.1@osu.edu
(614) 296-3362

Sarah Varekojis, PhD, RRT
Project Advisor
svarekojis@amp.osu.edu
(614) 292-8445

Fax: (614) 292-0210

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