12-12-2013

Adherence To Guidelines For The Screening And Treatment Of Vitamin D Deficiency In Elderly Patients

Kelly Massey

Rebekah Overstreet

Franklin Golden

HEALTHCARE PROVIDER ADHERENCE TO ASTHMA EDUCATION GUIDELINES

By

Kelly Massey, BSN, RN
Rebekah Overstreet, BSN, RN
Franklin Golden, BSN, RN

Mississippi University for Women
Supervising Faculty: Lorraine Gaddis, PhD, APRN

Clinical Research Project
Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Nursing, College of Nursing and Speech Language Pathology

Mississippi University for Women
Columbus, Mississippi

Health Care Provider Adherence to Asthma Education Guidelines

Graduate Committee Approval
The Graduate Committee of Kelly Massey, Rebekah Overstreet, and Franklin Golden, hereby approves their research project as meeting partial fulfillment of the requirements for the Degree of Master of Science in Nursing

Graduate Committee Approval

The Graduate Committee of Kelly Massey, Rebekah Overstreet, and Franklin Graham hereby approve this research project as meeting partial fulfillment of the requirements for the Degree of Master of Science in Nursing

Date: 12/12/13

APPROVED:

Chair of Research Committee

Member of Research Committee

Member of Research Committee

Member of Research Committee

Dr. Marty Hatton
Director of Graduate School

DEDICATION

The researchers dedicate this research project to our classmates, families, and instructors. We appreciate all the love and support you have shown throughout this graduate program. We would also like to dedicate this project to our fellow nurse practitioners. We hope this project reminds us and our colleagues, to always provide compassionate, thorough care to patients.

ACKNOWLEDGEMENTS

We would like to acknowledge the instructors in the Graduate Nursing Department at Mississippi University for Women for your leadership and support throughout this master's program. We are especially grateful for Ms. Terri Hamill, Dr. Carey McCarter, Dr. Johnnie Sue Wijewardane, and Dr. Lorraine Gaddis who served on our research committee. Thank you for guidance that helped us complete this research project.

ABSTRACT

Data show there are more than 25 million people in the United States living with asthma. It is recommended by the National Heart Lung and Blood Institute (NHLBI) that health care providers teach patients about asthma symptoms, asthma triggers, peak flow monitoring, asthma medications, and asthma action plans in order to minimize asthma exacerbations and improve quality of life. The purpose of this study was to determine if health care providers are educating adult asthma patients according to the NHLBI guidelines. Dorothea Orem's Self-Care Deficit Nursing Theory was used to guide the research. The researchers utilized a quantitative, retrospective, descriptive design to analyze 300 charts of asthma patients who were 18 years or older. This study was conducted in three different Mississippi clinics. Data analysis revealed that 86.96% of patients received some education of the recommended elements of asthma education. However, just 53.85% of the participants received education that included asthma symptoms, triggers, medication, and peak flow rates. Only 6.02% of patients were given an asthma action plan by their providers, and only 4.35% received information on community support groups. The researchers concluded that health care providers are not compliant with NHBLI-based guidelines for asthma education. Recommendation for further research included duplication of the study using a larger sample size and conduction of the study in a different geographic location. The researchers further recommended the creation of continuing education programs for nurse practitioners that address asthma education guidelines as well as the strengthening of education regarding appropriate asthma education measures in curricula in schools of nursing and medicine.

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CHAPTER I

Introduction

Asthma is a disease of the lungs characterized by inflammation and narrowing of the airways that leads to periods of wheezing, chest tightness, shortness of breath, and coughing. According to the National Heart Lung and Blood Institute (2012), there are more than 25 million people in the United States living with asthma, a condition that affects males and females equally. So vast is the issue of asthma that every day in America 44,000 people have an asthma attack, 36,000 children miss school due to asthma, 27,000 adults miss work due to asthma, 4,700 people visit an emergency room due to asthma, 1,200 people are admitted to the hospital due to asthma, and nine people die from asthma (Asthma and Allergy Foundation of America, N.D.) These numbers are staggering, and they strongly indicate that health care providers in the United States should thoroughly and address the special medical and health literacy needs of individuals with asthma.

Although the exact cause of asthma remains unknown, certain people are predisposed to asthma including those with allergies, eczema, a family history of asthma, a history of various respiratory infections during childhood, and a history of specific viral infections during infancy. Common triggers that lead to asthma exacerbations are dust, pollen, strong perfumes, exercise, cigarette smoke, aerosols, respiratory infections, and extreme weather changes. Medications that can cause asthma symptoms are nonsteroidal anti-inflammatories (NSAIDS), aspirin, and beta-blockers. There is no known cure for asthma. However, the avoidance of these triggers and early treatment of symptoms is essential in decreasing asthma exacerbations.

The Research Problem

A number of researchers (Distler, 2011, Braido et al., 2011, McGhan et al., 2010, and Rank et al., 2010) believe that the high numbers of asthma exacerbations are related to inadequate patient education and the failure of providers to follow nationally approved guidelines for asthma education. Among these guidelines are recommendations that health care providers, at minimum, teach their patients with asthma about triggers that could induce asthma exacerbations, peak flow monitoring, asthma medications, and asthma action plans (National Heart Lung & Blood Institute [NHLBI], (2012). Experts at the National Heart Lung and Blood Institute (2012) believe that delivering consistent asthma education according to these guidelines has the potential to substantially reduce asthma exacerbations, decrease healthcare costs, and reduce school and work absences. The current researchers sought to determine whether health care providers in selected areas of Mississippi follow these asthma education guidelines.

To further substantiate the impact of asthma on the health of Americans, the authors of Healthy People 2020 (United States Department of Health and Human Services [HHS], 2012) validated the importance of asthma education and treatment. Every 10 years the DHHS compiles new evidence-based research and develops new objectives in order to improve healthcare in the United States. There are several objectives in Healthy People 2020 regarding asthma. These objectives include reducing asthma-related deaths, reducing hospitalizations due to asthma, decreasing emergency room visits related to asthma, decreasing activity limitations in people with asthma, decreasing the amount of school and work days missed to asthma exacerbations, increasing the number of asthmatic patients who receive formal education, and increasing

the number of states or territories with an asthma tracking system to help control asthma cases and disabilities (United States Department of Health and Human Services, 2012).

The compilation of these statistics, recommendations, guidelines, and goals make it clear that asthma is a disease that produces a large impact on the American workforce and on the American health care delivery system. Nurse practitioners hold the potential for standing at the forefront of delivering vital asthma education and for conducting essential research about asthma education and management. This study is one such effort to determine whether proper patient education and management are delivered according to national guidelines.

Significance of the Study

The student researchers believe that lack of education often leads asthma to exacerbations. These exacerbations contribute to higher medical costs and absences from work and school. Individuals with asthma accumulate approximately $2,000.00 more in medical costs per year than patients without asthma. In addition, adults with asthma are absent an average of one to two days more per year than their cohorts who do not have asthma. Therefore, uncontrolled asthma leads to indirect financial loss if asthma sufferers are forced to miss work. With current medical advances and thorough education, most people can manage the disease so they experience few, if any, symptoms, less medical expenses, and fewer absences from work or school (Shenolikar, Song, Anderson, Chul Chu, & Cantrell, 2011). Fewer symptoms should naturally result in lower medical expenses and fewer absences from work or school.

Contrarily, improper education about home asthma management can lead to disability and even death (Asthma and Allergy Foundation of America, N.D.). For

example, patients must understand how to monitor peak expiratory flow rates (PEFRs). A peak flow meter is an inexpensive device that is uses to measure outflow from the lungs, and thus gives the user of the meter an idea of how much obstruction is going on in the lungs whether or not acute symptoms are present. Peak flows, measured regularly, are an excellent way for asthma patients to monitor their lung function at home, and they provide a quantitative measure for health care providers to use in determining whether the current medication regimen is effective (Vaz Fragoso et al., 2008). Failure of providers to prescribe and teach the use of peak flow meters can lead to needless asthma exacerbations, lawsuits, and even death.

In addition to peak flow meters, a plethora of research validates the importance of provider-performed education in asthma self-management (Gibson et al., 2003). Such education necessarily includes, but is not limited to, symptoms of asthma exacerbation, support group participation, proper use of asthma medications, asthma triggers, and follow ups (Distler, 2011 & Rank et al., 2010). Finally, Gibson, et al. (2003) asserted that the most effective way to enable adults with asthma to manage their disease is through a written asthma action plan. All these methods are included in the NHLBI (2012) guidelines for partnering with patients in asthma care. It is incumbent upon nurse practitioners and other asthma care providers not only to educate asthma patients properly and according to evidenced based guidelines but also to hold themselves and their colleagues accountable for upholding these guidelines.

Purpose of the Study

The purpose of this study was to determine whether health care providers are following nationally approved asthma education guidelines. These guidelines were

written to help patients maintain normal lung function, activity levels, prevent exacerbations, and minimize the need for emergency care, and hospitalization. It is vitally important for health care providers to perform and document asthma education on every visit to prevent asthma exacerbations (NHLBI, 2012, and HHS, 2012).

Research Questions

Health care providers should teach patients about asthma symptoms, asthma triggers, peak flow monitoring and other types of self monitoring, asthma medications, and asthma action plans in order to minimize asthma exacerbations and protect health and life (National Heart Lung and Blood Institute, 2012). This education has shown the potential to substantially decrease health care costs, work and school absences, improve quality of life, and even save lives. For the purposes of this study the current researchers sought to answer the following questions:

1. Was patient education regarding asthma initiated at the time of diagnosis?
2. Was patient education regarding asthma continued at follow-up visits?
3. Did the educational information include asthma, asthma medications, self-monitoring of asthma symptoms, and monitoring of peak flow levels?
4. Was the patient given a written asthma action plan that included information on daily management and treating asthma exacerbations?
5. Was the patient encouraged to participate in community support groups?
6. Was there an appointment made within six months for a routine asthma follow-up?

Definition of Terms

For this study, there were several terms that needed to be defined as they apply to the study. The theoretical and operational definitions follow, respectively.

Asthma education.

Theoretical. Systematic instruction by health care providers to patients regarding the diagnosis of asthma that includes asthma triggers, asthma medications, asthma symptoms, and monitoring of peak flow levels

Operational: Instructions about asthma triggers, asthma medications, asthma symptoms, and monitoring of peak flow levels provided to patients that is documented on the charts of patients with asthma

Asthma action plan.

Theoretical. A written plan for asthma management developed by the health care provider for a patient with the condition of asthma and presented to that patient for use in self-management of asthma

Operational. A written plan of asthma management for a patient with asthma developed and documented on the patient chart by the health care provider

Asthma.

Theoretical. Asthma is a paroxysmal, often allergic disorder of respiration, characterized by bronchospasm, wheezing, and difficulty in expiration, often accompanied by coughing and a feeling of constriction in the chest (N.A., 2012).

Operational. For the purpose of this study, asthma is defined as an asthma diagnosis on the charts of patients at three clinics used for the study.

Asthma symptoms.

Theoretical. An asthma symptom is a phenomenon that arises from and accompanies a particular disease (N.A., 2012). For the purposes of this study asthma symptoms are physical phenomena that arise as manifestations of the disease of asthma.

Operational. Asthma symptoms include wheezing, chest tightness, shortness of breath, and coughing, and other symptoms documented on patient charts as associated with an asthma diagnosis.

Peak flow.

Theoretical. Peak flow is a person's maximum speed of respiration as measured by a peak flow meter (N.A., 2012).

Operational. For the purpose of this study, peak flow is the measure of how well and how fast a person moves air out of the lungs as documented on patient charts.

Medication.

Theoretical. Medication is a treatment such as drugs or remedies (N.A., 2012).

Operational. For this study, the term medication refers to drugs documented on patient charts as being prescribed for the diagnosis of asthma.

Community support groups.

Theoretical. Community support groups are groups in which people with a common problem help strengthen each other and move forward in life (N.A., 2012).

Operational. For this study, community support groups refer to groups in which asthmatics help each other cope with their disease.

Assumptions

For the purposes of this study, two assumptions were made. The first assumption is that if healthcare providers conduct asthma education, they document that education on patient charts each time it is conducted. The second assumption is that education about asthma by healthcare providers will improve patient outcomes.

Theoretical Framework

The researchers adopted a nursing theory from Dorothea Orem to use as the basis of the research study. Dorothea Orem developed a nursing theory called the Self-Care Deficit Theory that she and Taylor (2004) described as including the theory of self-care deficit, theory of self-care, and theory of nursing systems. The researchers used the specific theory of self-care as the theoretical framework for this research study. In this theory, Orem (2004) stated that patients will perform self-care functions if they are educated regarding their health and are capable of performing the required activities. Based on Orem's theory, if patients are being educated appropriately about asthma, they will complete the steps necessary to maintain health and decrease impairment (2004).

According to Orem's theory, self-care actions are those that people routinely perform on their own behalf. The goals of these actions include maintenance of life and health, recovery from disease or injury, and coping with the effects of a particular disease (George, 2011). Asthma could be considered a health deviation in which there is an abnormal change in bodily structure and function. For individuals with asthma, self-care actions include seeking appropriate medical assistance, becoming knowledgeable of their condition, performing appropriate rehabilitative measures, modifying self-image, and

accepting their current health state and its associated needs including all self-care measures taught to them by their health care providers.

Orem and Taylor (2004) stated that nursing is needed when there is a difference in what patients can do and what needs to be done to maintain health. If a patient is limited in his or her ability to provide the necessary self-care actions, nursing care should be provided. Numerous actions by the nurse are appropriate when self-care deficits occur. These actions may include performing tasks for another individual, teaching the individual, providing guidance, direction, physical or psychological support, and assisting in the maintenance of an environment that supports personal development (George, 2011).

Orem and Taylor (2004) described three classifications of nursing systems that may be employed when self-care deficits occur. These systems are wholly compensatory, partly compensatory, and supportive-educative. In the wholly compensatory system, individuals are unable to carry out self-care actions due to physical or psychological deficits. In the partly compensatory system, both patient and nurse are active in carrying out tasks to meet patient's self-care needs. In the supportive-educative system, the patient is capable of performing all self-care activities, but needs help with gaining knowledge and skills. An individual can move from one nursing system to another over time (George, 2011). For instance, an asthma patient may be in the supportive-educative system while asthma is under control. Then, the patient may move to a partly compensatory system when an exacerbation occurs that requires emergency management. If the exacerbation were so severe that mechanical ventilation is required, the patient would enter a wholly compensatory system. As the patient's condition begins to improve he or she would again

enter the partly compensatory system. Upon discharge from the facility, the patient would re-enter the supportive-educative system.

In this study, the Self-Care Deficit Theory was used to elucidate the importance of education on the quality and maintenance of asthma patients' health. Once a self-care deficit has been identified, it can only be improved if nurses and other health care providers are committed to acting at the level needed to address the deficit and restore the patient to independent functioning and health care maintenance. The current researchers sought to determine whether recommended education for asthma was provided through the supportive-educative nursing system.

CHAPTER II

Review of Literature

Research articles related to the current study were reviewed and critiqued. The literature review highlighted the assertion that appropriate teaching often results in better patient outcomes. As stated in Orem's theory, patients will perform self-care activities if they are educated regarding their health and are capable of the activities (Orem, 2004). In many of the studies, the patients managed their disease or disorder better after being educated regarding issues such as symptoms, medications, preventative treatments, and other phenomena specific to the condition of asthma. Reviewing pertinent literature helped the researchers identify key areas of concern for asthma education and provided information to validate the use of the Self-Care Deficit Nursing Theory as a framework for the study. In addition, general information on asthma, healthcare provider communication styles, the prevalence of asthma, peak expiratory flow rates, types of peak flow meters, financial effects of asthma, asthma triggers, and medications are included.

Asthma Prevalence

Akinbami, Moorman, and Liu (2011) investigated the prevalence of asthma in various genders, ages, races, income statuses, and areas of residence. The study also evaluated whether the overall prevalence of asthma in the United States has increased or decreased over the past 20 years. This study conducted by Akinbami et al. is essential for identifying individuals at high-risk for asthma in order to diagnose and treat these individuals promptly.

The researchers performed quantitative research consisting of cross-sectional surveys and retrospective chart reviews. The study was performed by compiling data from three national sample surveys in which random United States citizens were personally interviewed. For one survey, the National Health Interview Survey, a researcher asked one adult family member questions regarding general health issues for all family members in the household. The National Ambulatory Medical Care Survey used a sample from a population who sought medical care at physicians' offices by collecting information from these offices. Finally, the National Hospital Ambulatory Medical Care Survey sampled populations who sought treatment at emergency departments or who required short-term hospitalization. Personal interviews were made nationwide, and data were obtained from patients and healthcare workers. Data were also collected by using the retrospective chart review method for the National Hospital Discharge Survey (NHDS) and the National Vital Statistics System (NVSS). With the NHDS, information was gathered from inpatient medical records from hospitals across America, and estimates were based on the number of discharges. Finally, the NVSS data were collected by reviewing all national death certificates filed and reviewed by the Centers for Disease Control and Prevention's National Center for Health Statistics. The researchers used the *International Classification of Diseases, Ninth Revision* to define asthma in the surveys and *International Classification of Diseases, Tenth Revision* to classify deaths caused by asthma (Akinbami et al., 2011).

The researchers analyzed the data by using SUDAAN software to provide estimates and standard errors. Reliable estimates were defined by the researchers as having a relative standard error of 30 % or less. The researchers also used Joinpoint

software to test the significance of trends over time by substituting numbers into an equation (Akinbami, et al., 2011).

The researchers found that the overall prevalence of asthma has slightly decreased over the past two decades. However, the prevalence of asthma is still very high. Approximately 25 million Americans currently have a diagnosis of asthma. The researchers concluded that asthma tends to be more prevalent in females, African Americans, Puerto Ricans, low-income groups, children, and people living in the Northeastern and Midwestern parts of the United States. The researchers also found that even though children present to healthcare providers more often for asthma exacerbations, they have a lower mortality rate than adults (Akinbami et al., 2011).

The strengths of this study include credible data sources, unbiased population samples, and large population samples. The researchers chose national government surveys, which are good data sources and performed face-to-face personal interviews. Also, the interviews were random which prevents any bias in sample selection. Weaknesses include no identification or explanation of a theoretical framework and no strong recommendations for future education or treatment plans. Another weakness in the study was that the researchers did not explain how they maintained patient confidentiality when reviewing charts and questioning healthcare workers. Another marked weakness was not providing some list of suggestions on how to prevent future outbreaks of asthma exacerbations or decrease asthma prevalence. The significance of performing the study is to develop treatment plans and prevent further attacks.

This study is applicable to the researchers study because it shows the severity and fatality of asthma. The study also shows the vast number of individuals that are affected

by asthma, including those most severely affected: females, African Americans, children, Puerto Ricans, low income groups, Northeastern, and Midwestern Americans (Akinbami et al., 2011). Therefore, it reinforced the student researchers' study by substantiating the importance of discovering how much education was being performed regarding asthma, especially to the more susceptible people groups.

In a study more specific to the current study, Baptist, Talreja, and Clark (2011) described asthma prevalence in Mississippi, citing that Mississippi's asthma mortality rate is slightly higher than the national average at 11.8 per million people versus 11 per million for the United States (N.A., 2011). Mississippi's hospitalization rate for asthma is lower than the national average at 129.1 per 100,000 people versus 144 per 100,000 people. Currently in Mississippi, there is no tracking for assessment and monitoring, patient education, control of environmental factors contributing to asthma severity, and pharmacologic treatment. Studies have shown that patient education of asthma has improved the quality of life and mortality rates, and Baptist, et al. asserted that significant education still needs to be done to decrease healthcare costs related to asthma (Baptist et al.).

To fortify these assertions, Baptist et al. (2011) conducted a quantitative secondary analysis of the National Asthma Survey (NAS). The NAS was a cross-sectional phone survey conducted by the National Center for Environmental Health, an entity of the Centers for Disease Control (CDC). The data were gathered one time (Baptist et al.).

Baptist et al. (2011) examined the CDC asthma survey that was collected from several southern states, specifically looking for individuals who were older than 65 and

who had been diagnosed with asthma by a healthcare provider. The participants were categorized according to individuals who were educated on peak flow meters, those who had an asthma action plan, and those who had taken an asthma course. The researchers also assessed to see how many participants had long and short-term control of their asthma. A total of 398 adults over 65 years old with asthma were identified. The population was broken up into two groups. The first group included subjects older than 65 years old who had received instruction on either an asthma action plan or a peak flow meter and those who had no instruction. The second group was elderly adults who took an asthma course and those who did not. There were 232 subjects that were over the age of 65 and had received instruction on the use of a peak flow meter or had an asthma action plan. Of the participants, 166 did not have any peak flow meter instructions or an asthma action plan. Forty-two adults were identified who took an asthma course versus 356 who did not (Baptist et al.).

The researchers used Chi-square, multiple logistic regression, univariate analysis, bivariate analysis, two tailed test and multivariate logistical regression where $p<0.05$. A weakness in the study was recall bias because data were collected via phone interview and was based solely on the answers of the respondents. Whether or not the participants actually had asthma, received education on the use of the peak flow meter, created an asthma action plan, or had taken an asthma course was not actually verified (Baptist et al., 2011).

Data analyses revealed no significant differences in short and long-term control of asthma between adults who had education on the use of the peak flow meter or had an asthma action plan and those who had no education. There were no significant

differences in short and long-term asthma control between participants who had taken an asthma course and those who had not. Since there were no statistical differences in short and long-term control of asthma in participants who had received education and those who did not, the authors surmised that maybe an education plan needed to be developed to address the elderly asthmatics (Baptist et al., 2011).

This article is useful to the researchers' study because the focus was on adult patient education and it's impact on quality of life. The current researchers also examined asthma education for adults with asthma. The Baptist et al. study shows that all education programs are not created equally. Elders account for 50% of all asthma related fatalities that also have a high hospitalization rate (Baptist et al.). Therefore, it is not only important to educate adult asthmatics, but it also important to assess how much of the teaching patients understand.

Health Care Costs of Asthma

The effects of asthma on health care costs is reflected in a quantitative study by Shenolikar et al., (2011) performed a quantitative study that evaluated the effect of asthma on direct and indirect costs among US working adults. Prior research had shown that asthma significantly increases the direct and indirect costs but the studies lacked generalizability as their data reflected only a specific geographic region or employer. The current study was conducted with more recent data to better represent the typical US working adult (Shenolikar et al.).

Shenolikar et al. (2011) utilized two national research databases and data were therefore representative of the entire US. Information on workplace absence and short-term disability were collected from these databases. Both databases were de-identified in

accordance with the Health Insurance Portability and Accountability Act (Shenolikar et al.).

A case-control design with retrospective claims analysis was used for the study. A group of asthma patients and a control group were compared to determine the direct and indirect costs of asthma. Subjects from each group were required to meet certain common demographic and clinical characteristics. Choosing these subjects with shared characteristic that which are likely to affect outcomes made it possible to attribute any differences in costs between the two groups to the presence of asthma (Shenolikar et al., 2011).

The population of asthma patients and the control group patients met certain eligibility requirements for participation in the study. Patients in both groups had to be continuously enrolled with medical and pharmacy benefits during the indicated time period. Individuals chosen for the asthma group had to be 18 to 64 years of age with either one inpatient stay or emergency department visit with asthma listed as the primary diagnosis, two or more outpatient visits on two dates with asthma listed as any diagnosis, or one or more outpatient visits with asthma listed as any diagnosis and one or more asthma medication prescription during the designated time period. The patients in the control group had to be 18 to 64 without an asthma diagnosis or treatment and without chronic obstructive pulmonary disorder or emphysema (both similar diseases with similar treatments to asthma that would make it difficult to single out the effects of only asthma) during the indicated time period (Shenolikar et al., 2011).

Direct and indirect costs of asthma were the primary outcome measures in the study. Direct costs were assessed from complete medical and pharmacy claims and

included total reimbursed amounts including patient copayment and deductibles for inpatient admissions, emergency department and outpatient visits, and pharmacy charges. Assessment of indirect costs included number of absence days from work, number of short-term disability days, and other indirect costs. The number of absence days and short-term disability days were determined by dividing the number of hours of missed work by eight (a typical workday). This number was then multiplied by age, sex, and region-specific wage rates to determine costs associated with absenteeism. For the purpose of the study, 75% of the wage rate was used to figure the costs associated with short-term disability (Shenolikar et al., 2011).

The dependent variable in the study conducted by Shenolikar, et al. (2011) was the presence of asthma. There were two types of independent variables: demographic characteristics and clinical characteristics. Age, sex, geographic region, and insurance types were demographic characteristics. Clinical characteristics included the Charlson Comorbidity Index, and type of industry. Multivariate analyses were carried out using propensity score matching. Assessment included direct costs in relation to all patients, absence days and associated costs in one subset of patients, and short-term disability days and associated costs in another subset of patients (Shenolikar et al.).

Sample size (after exclusions for not meeting parameters) was 13,379 patients with asthma and 13,379 controls. The 13,379 patients with asthma were employed full-time, some had absence eligibility, some had short-term disability eligibility, and some had neither. Forty-two point two years of age was the mean age among cases and controls (Shenolikar et al., 2011).

Following data collection and analysis, the study by Shenolikar, et al. (2011)

found that the total costs for patients with asthma were substantially higher than that for patients without asthma. Total medical costs, or direct costs, were $1785 higher for asthma patients than patients without asthma with a breakdown as follows: inpatient costs $322 higher, emergency department costs $141 higher, outpatient costs $294 higher, and prescription costs $1029 higher. Indirect cost increases included 1.1 more absence days with $191 associated with absence per year and 2.2 more short-term disability days with $172 associated with short-tern disability per year (Shenolikar et al.).

The quality of data collection is significant to the practice of medicine in that it is indicative of a much larger employed population rather than a smaller study group. Although the results of this study are comparable to those found in recent studies, there are a few weaknesses that should be considered in relation to the findings. The study included patients of large self-insured employers and a study of patients or including patients of small employers, with Medicaid, or with no insurance would likely yield different results. It was not a requirement that lost work days be related to asthma. The indirect costs for patient who were part-time were not included so the results could be slightly underestimated (Shenolikar et al.).

Increased direct and indirect costs associated with asthma indicate a need for disease management programs and treatments that prevent or reduce asthma symptoms. The results of the Shenolikar, et al. study are applicable to the current research in that asthma control and associated costs are directly related.

Asthma Triggers

A major part of asthma management is avoiding triggers. Rank, Wollan, Li, and Yawn (2010) performed a quantitative retrospective cohort study related to trigger

recognition and management in poorly controlled asthmatics. Prior research has shown a significant deficit in adherence to asthma guideline recommendations for trigger management in current clinical practice. Prior research has also shown that the identification of asthma triggers is of utmost importance in comprehensive asthma management programs (Rank et al.).

The purpose of the Rank, et al. (2010) study was two-fold. The researchers evaluated the gap between guideline-suggested asthma trigger management and its persistence in multiple care settings. In addition, they also sought to identify the best opportunities within the healthcare system to improve asthma trigger maintenance.

Participants were randomly selected Olmsted County, Minnesota residents who met a predetermined definition of poor asthma control. Charts of each participant were assessed for data on visit site, visit reason, trigger evaluation, trigger avoidance advice given, and adherence to prior avoidance advice. A standardized chart abstraction form was used to review clinician notes, consultation notes, and referral letters (Rank et al., 2010).

The participants were chosen through the use of the Rochester Epidemiology Project, a data linkage project. Utilization of healthcare facilities and healthcare diagnoses in the projected area of Olmsted County were reviewed. Patients included were less than or equal to 45 years of age and had, during 2003-2004, either four or more asthma related visits, hospitalization or emergency care for asthma, or a cluster of three or more visits in 14 days for asthma. Those with fewer than two asthma visits during 2003-2004 were excluded, as were subjects who refused consent for participation and those with a diagnosis of chronic obstructive pulmonary disease or other major

respiratory disease. After exclusions, the sample size was 102 patients (Rank et al., 2010).

As a requirement, asthma had to be listed as a diagnosis in the impression, assessment, recommendations, or plan in a specific visit for it to be included in the study. An asthma exacerbation was indicated by visit to healthcare site, prescription for systemic corticosteroids, or cluster of three visits in 14 days for asthma. The sites of care included any site where asthma care was provided such as the emergency department, urgent care, hospital, etc. (Rank et al., 2010).

Six hundred eighty-six asthma related visits were noted for study participants. Fifty-one percent of the visits were for asthma exacerbations with an average of 6.7 visits over the two-year study period. Little difference was noted between children and adults, although females averaged more visits than males. Fifty-nine percent of asthma visits took place in primary care, 21% in allergy clinics, and 17% in emergency departments (Rank et al., 2010).

Eighty-three percent of asthma visits had one or more trigger inquiry recorded with two being the mean number documented. Trigger inquiry types included infection, environmental tobacco exposure, allergens, exercise, sinusitis, and cold air. Visits for asthma exacerbations were noted to have one or more trigger inquiries documented 86% of the time compared with 80% for non-exacerbation visits (Rank et al., 2010).

In 30% of asthma visits, advice on trigger management was documented. Advice relating to infection, allergens, and environmental tobacco smoke was most common. Factors of age, gender, asthma exacerbation visits versus non-exacerbation visits, and provider type was examined through multivariate logistic regression. The researchers indicated that patient demographics and provider types influenced asthma trigger

management. More adults than children were likely to receive trigger management advice and non-infection trigger advice. More men than women received non-infection trigger advice. More emergency room clinicians than outpatient clinicians were likely to give infection trigger advice, but more outpatient clinicians than emergency clinicians were likely to give non-infection trigger advice (Rank et al., 2010).

Medical records were also reviewed for documentation of follow-up on trigger avoidance advice and on patient's reports of adherence/non-adherence to advice. Asking about adherence to trigger advice was documented at 6% of visits and 43% of subjects reported actually adhering to advice in the visits for which it was assessed. Overall, 3% of asthma visits reviewed for the study showed adherence to trigger management advice. Not all subjects followed up with the clinician who gave the advice; therefore, follow-up to advice was only documented in 10% of cases in which it was given (Rank et al., 2010).

Trigger exposure can lead to poor asthma control and asthma exacerbations. Failure of clinicians to document trigger advice and follow-up could represent a gap in current asthma care among the participants studied. Trigger identification differs depending on the setting and the type of visit (exacerbation/non-exacerbation). Since trigger inquiries were notably less common during outpatient visits, it can be deduced that this is an area to improve trigger inquiry, provide advice, and follow-up (Rank et al., 2010).

Trigger avoidance education during asthma exacerbations may be infrequent due to the perception that it is of limited value in overall asthma management. Many experts, however, believe that environmental trigger control equals the importance of pharmacotherapy and immunotherapy for asthma. Interventions including an educational

component along with medication and self-monitoring are viewed as most successful in reducing asthma symptoms (Rank et al., 2010).

Several weaknesses of this study should be considered. Reliance on medical record documentation, modest sample size, and regional sample of subjects are a few. Noting only two triggers per visit could also be considered a weakness of this study as many potentially important triggers may have gone unidentified (Rank et al., 2010).

In conclusion, Rank and colleagues revealed suboptimal asthma trigger recognition and management. Increasing effort should go into improvements in asthma care interventions in the future. According to the findings of the study, the optimal time and place for these interventions is during routine asthma outpatient visits (Rank et al., 2010).

The results of the study indicate a need for further assessment of asthma education. The education provided to patients regarding the recognition of and avoidance of triggers has a direct effect on asthma control (National Heart Lung and Blood Institute, 2012). In the current research project current methods and information used to educate patients was examined. This information will be useful in determining areas that need improvement.

Importance of Asthma Education

Distler (2011) sought to identify general information about asthma management, asserting that avoidance of triggers and early treatment of symptoms are essential to decrease the severity of exacerbations and the need for treatment in a healthcare setting. Distler hypothesized that if patients had access to proper medications, medical supplies, and were educated about asthma, it would lead to better control of the disease thus reducing emergency room visits. Distler received a grant from the American Academy of

Nurse Practitioners Foundation to create an education initiative and purchase asthma supplies to give patients who were uninsured and had incomes at or below 200% of the poverty level. Distler proposed that lack of knowledge about asthma and its symptoms, lack of access to proper medicine, and lack of medical supplies caused increased visits to the emergency room (Distler).

Distler's (2011) qualitative study was conducted at Access Carroll, a nonprofit hospital that was located close to the researcher's asthma and allergy clinic. The hospital employed individuals with whom the researcher had past collegial relationships. Distler developed an intake questionnaire and education program from the National Heart Lung and Blood Institute (NHLBI) guidelines for the diagnosis and management of asthma, and produced a questionnaire regarding asthma knowledge from Schaffer and Yarandi.

The sample size was a small convenience sample (N=20) of patients who had been deemed by the hospital administration in need of more in-depth asthma treatment. The patients were diagnosed with persistent mild, moderate, or severe asthma. The hospital administration protected the patients' rights by having them sign informed consent. The researchers detected no bias since the hospital chose the participants (Distler, 2011).

An eight-question intake form and a 24-question true or false asthma knowledge questionnaire were administered to the participants. Then, the participants attended an education seminar. The process was repeated three months later, and the results were compared to the previous assessment. This was done in order to evaluate and contrast any changes in participant knowledge and understanding of asthma self-care (Distler, 2011).

Results of the study showed that most patients improved their overall knowledge

of asthma. However, the patients still did not comprehend the routine use of their medications to prevent asthma attacks. Also, most patients did not recognize that exercise was a common trigger for asthma exacerbations. The patients felt they were able to control their asthma better with education and supplies. The patients also had fewer visits to the emergency room and reduced daily use of their rescue inhaler. The patients, however, still reported the same amount of days of restricted physical activity and asthma symptoms (Distler, 2011).

Distler (2011) recommended that health care providers offer pre-planned group education classes as a way to change the behavior of patients for a variety of medical disorders. The researcher advised that educating a patient when they are sick may not be the best time, and further suggested using an asthma control and knowledge questionnaire to assess patient knowledge as well as individual asthma control. Distler recommended that the questionnaire should be repeated on subsequent visits to show patients how they have improved and to encourage patients to perform self-care (Distler).

A small sample size of 20 patients was a weakness in the study. However, a positive aspect of the study was that the patients improved overall with education and information provided by the healthcare providers (Distler, 2011).

This article was reviewed because educating patients properly is key to their health as stated in Orem's theory. Less frequent visits to healthcare providers and emergency rooms will help decrease medical costs and indicate fewer self-care deficits.

In order to decrease self-care deficits, education must be communicated appropriately. Braido et al., (2011) speculate in their research that miscommunication between healthcare providers and patients could contribute to asthma exacerbations. The

researchers hypothesized that many patients lacked appropriate knowledge to control their asthma due to some healthcare providers overusing medical jargon, not allowing patients to ask enough questions, not providing written material on asthma, and/or not providing patients with an asthma action plan. The researchers evaluated the behavior and communication styles of the healthcare providers as they provided education to their patients regarding asthma. After careful observation, researchers felt that healthcare providers were not communicating properly to provide sufficient asthma education to their patients (Braido et al.).

The researchers performed a quantitative, observational study. Braido et al. (2011), with the help of the Italian Society of Respiratory Medicine (SIMeR), created a 28 multiple-choice questionnaire for the healthcare providers to assess their perception of asthma patients' needs as well as their personal experiences with asthma management. A patient educational and investigational tool was developed. SIMeR created a list of 37 disease-related aspects that should be known by the patient for lasting asthma control. The 37 items were then reviewed by 16 pulmonologists, who were involved in updating the asthma guidelines for Italy and 16 patients who were members of two asthma and allergy associations. The two groups narrowed down the 37 disease-related aspects to the top 10 and ranked them accordingly (Braido et al.).

The researchers had two sample populations: physicians and their patients who had been diagnosed with asthma. The physicians were purposively sampled from a continuing education course on asthma. The ones who were asked to participate were office-based, between the ages of 25 and 72 years, and had at least 1,000 asthma patients. The physicians were asked to recruit five consecutive asthma patients came to the office

for consultation or to pick up medication to participate in a survey. The patients had to be over 18 years of age and could not have chronic obstructive pulmonary disorder. There was an average of three patients per physician. The study followed guidelines for confidentiality, data protection, and ethics per the Italian National Legislation and was also approved by the local ethics committee (Braido et al., 2011).

Before the CME course started, the researchers asked the physicians to fill out an ad hoc survey of 28 questions to explore the physicians' personal experiences regarding asthma management, their perceptions of asthma patients' needs, how often they used certain communication styles, how well they felt the patient understood their disease, asthma control, long term treatment and goals. They also wanted to know how the physicians dealt with patients' concerns. The first 24 questions were ranked on a five-point Likert scale, and the remaining four questions were multiple choice. The patients were asked to provide demographics and rank the ten asthma disease-related aspects according to importance (Braido et al., 2011).

The answers to the first 24 questions were divided into those who were prone to use a strategy as opposed to those who were less prone to use the strategy as a percentage. The results were then further broken down according to gender. The remaining four multiple-choice questions were ranked according to percentage of choice. The patients' 10 asthma concerns were compared and contrasted to the test developer's answers by frequency of choice, mean importance, and relevance. The researchers used the following statistical tests to review for heterogeneity, equality, and to detect significant differences in the means of quantitative variable for independent samples: *t*-test, ANOVA, Chi Square, and Z-test with α=0.05 (Braido et al., 2011).

Researchers found that the physicians did not foster an environment of open communication. Approximately 28% of the physicians did not ask their patients if they had any doubts, concerns, or expectations regarding their disease. An estimated 74% did not provide additional support material, such as brochures or pamphlets. Only half of the doctors provided a written action plan and followed up with proper use of an inhaler. Thirty-nine point four percent of the physicians used scare tactics to try and get their patients to comply with protocol. Only 18% of physicians discussed side effects of medications with the patient. Approximately 16% of physicians knowingly did not simplify treatment plans and 30% choose a complicated drug regimen. Just 18% of doctors were willing to work in a partnership with the patient to create an action plan, and 36.9% of physicians gave the patient a choice in how to manage their asthma. Interestingly, 90% of physicians want to maintain high control of their patients and requested consultation prior to treatment change. Also, physicians focused on educating patients on how to prevent asthma crises. However, most patients thought the focus of asthma education should be integrating asthma into their daily life and when to see a healthcare provider for check-ups (Braido et al., 2011).

The research underscored how knowledge is vital for the patient's health and the prevention of unnecessary medical expenses. An open dialogue is important for the healthcare provider and patient so they can work together to form a plan to prevent a crisis situation.

McGhan, et al. (2010) performed a study to evaluated whether school aged children with asthma who participated in "Roaring Adventures of Puff" (RAP) experienced better disease management than children who received regular care. RAP is

a six-week, child centered, school based, asthma education program for children that is administered by health professionals in the school setting. McGhan et al. hypothesized that children with asthma who participate in a comprehensive, interactive education program will experience an improvement in their quality of life and disease management and control than those who do not participate in a program.

After approval by the University of Alberta Health Research Ethics Board, 34 schools were randomly selected and assigned to receive either the RAP asthma program or usual asthma care. The schools in the RAP group represented the intervention group and the schools receiving usual care represented the control group. Children with physician-diagnosed asthma were identified through a school-wide health survey that was mailed to and filled out by parents. Families that showed and interest were then called on the phone. Each parent and child gave consent for enrollment in the study (McGhan et al., 2010).

Participants had to meet several eligibility requirements. Children had to be English speaking and in grades two through five. They had to have a parent-reported diagnosis of asthma by a physician and consent from parent for participation. They could have no history of participation in a RAP program (McGhan et al., 2010).

Prior to the RAP intervention, a RAP awareness event was held at the school for parents and teachers. The instructors included four respiratory therapists, and one community health nurse. This purpose of this event was to give parents and teachers information on asthma management, school asthma issues, and RAP. Of high priority was reviewing asthma management guidelines and ensuring that the participants have written asthma action plans (McGhan et al., 2010).

Baseline information was gathered for each child at his/her school before intervention. This included peak flows and completion of the Pediatric Asthma Quality of Life Questionnaire (PAQLQ). The PAQLQ included 23 questions that measured the quality of life of children with asthma in relation to activity limitations, symptoms, and emotional function. Demographic information, medication use, health care use, school absenteeism, and attitudes toward asthma were also assessed through the parent RAP questionnaire. Then, the questionnaires were completed again at six months and 12 months after intervention (McGhan et al., 2010).

Data analysis using the Pearson X2 test compared pre and post intervention outcomes for the RAP group and the control group. The participants were predominantly Caucasian. The intervention group consisted of 104 students and the control group 162. The average age of participants was 8.6 with asthma diagnosis occurring at a mean of 3.6 years of age (McGhan et al., 2010).

Participation in the program had a powerful impact on participant's disease management behaviors. Both groups experienced a reduced number of unscheduled doctor visits and emergency visits. An improvement in the number of school days missed due to asthma was noted in the intervention group, but not the control group. Fifty percent of children in the intervention group experienced a decrease in the frequency of inhaled bronchodilator use compared with 31% in the control group. Parents in the intervention group experienced a significant increase in their understanding of asthma compared to the control group. Finally, significant overall improvement in outcome measures and quality of life for the RAP group was noted (McGhan et al., 2010). Although the current researchers' study involved the use of charts of adult patients, the

McGhan et al. study was important for establishing the need for asthma education, and the power of including as many stakeholders in the asthmatic individual's life as possible in asthma education to elicit the best outcome possible.

In an important literature review, Gibson et al., (2009) extracted data from 25 studies in an effort to measure the effectiveness of asthma education programs in Australia. The objective of the review was to assess the combined effects of asthma self-management programs and with health care practitioner reviews with patients on asthma outcomes in adult patients. Randomized trial of self-management education on adults over age 16 were the only types of studies included. In 22 of the studies self-management education was compared with a concept termed usual care in which self-management education was not conducted.

The main results of the Gibson, et al. (2009) review were that self-management education reduced hospitalizations, reduced emergency room visits, and reduced unscheduled medical visits. In addition, days off work were significantly reduced when self-management asthma education was employed. Perhaps the most important finding from the compilation of studies was that that there was a greater reduction in hospitalization among those patients who received a written asthma action plan than among those who did not. Although measures of lung function showed little change, individuals who managed their asthma according to a written, individualized plan had better lung function than those individuals whose asthma medications were adjusted by a physician. The researcher's concluded that asthma education that involves self-monitoring by peak flow meter or symptoms, coupled with regular medical check-ups and a written asthma action plan, are more effective than other forms of asthma self-

management (Gibson, et al.). The reviewed study is significant to the current study in that it underscores the importance of ongoing asthma education not only in Mississippi, but in other parts of the world as well, bringing a global perspective to the current researchers' work.

Finally, in a study that underscored the disparities in asthma care, George, Campbell, and Rand (2009) qualitatively examined the self-management of asthma among low-income urban adults. The researchers interviewed 25 low-income adults, 76% of who were African American and 92% of whom were female.) Only one of the subjects had received asthma self-management education. None of the subjects had a peak flow meter or an asthma action plan. Only 10, or 40%, used short acting beta agonist (SABA) protocols for the initial management of asthma, while the majority (52%) chose to use complementary or alternative medication (CAM) for the initial management of asthma. Participants in the study perceived that CAM was safer than SABA, as well as providing them with a sense of customized self-management. At the end, the researchers concluded that it was unclear whether the subjects' use of CAM was related more to choice or more to lack of education (George et al.). Once again, the George et al. study is one that underscores the essential role of health care providers in educating, re-educating, closely monitoring, and assisting with self-monitoring of adults with asthma, the population of interest for the current study.

The review of literature strongly emphasizes the effects of asthma on individuals and on the economy through health care costs. Moreover, the vital role of all aspects of asthma education, for adults and elders as well as for children and parents, is evident in both very current and older literature. However, no empirical studies were found that

specifically examined whether or not health care providers consistently provide education regarding asthma symptoms, triggers, medications, as well as an asthma management plan. Therefore, the current student researchers sought to examine adherence of health care providers to asthma management guidelines that assert that such education is imperative.

CHAPTER III

Design and Methodology

To improve disease management and quality of life for asthmatics and reduce the direct and indirect costs associated with asthma the National Heart Lung and Blood Institute (NHLBI), as part of the National Institutes of Health, has set forth guidelines (Appendix A) to regulate the standards of care in asthma treatment (NHLBI, 2012). The researchers focused on provider's adherence to these guidelines by examining charts to determine whether or not the selected patients received disease education, whether appropriate asthma actions plans were developed, and whether asthma patients were offered ongoing community support. A quantitative, retrospective, descriptive design was used for this research study. This design was appropriate because there was a limited time for researchers to gather data, the charts were be easily accessible once the proper consents were obtained, and quantifiable data could be pulled from patient records.

Population and Sample

This study took place in three Mississippi clinics. One was a nurse practitioner managed clinic that employed nurse practitioners and on-site physicians. The second site was a family clinic that employed family physicians and nurse practitioners. The third site was a pulmonology clinic that employed nurse practitioners and physician specialists. The target population for the study was patients with a confirmed asthma diagnosis, 18 years of age or older, in the United States. The assessable population for this study consisted of the entire patient population of the chosen clinics with the required age and diagnosis. A convenience sample was used. Three hundred charts were randomly selected that met the above requirements. That number included 100 charts from each clinic.

Protection of Subjects

The data for this study were gathered through retrospective chart review, thus no human subjects were used. All data gathered from charts were kept confidential and were protected by the researchers. No identifying information was documented on the recording sheets. Data were entered into a computer spreadsheet and saved to a flash-drive assessable only to researchers and was kept in a locked area. At the end of the study all paper and data were shredded. Because the research design was a retrospective chart review, subjects were not at risk nor did they benefit from the study. Approval was obtained from the Mississippi University for Women Institutional Review Board prior to data collection. The researchers obtained informed consent (Appendix B) for the chart reviews from the office manager or review board of each clinic where the study took place.

Data Collection

The researchers reviewed the 300 charts and gathered data to determine whether asthma action plans were developed and if they included education regarding asthma, asthma medications, self-monitoring of asthma symptoms, monitoring of peak flow levels, daily asthma management, treatment of asthma exacerbations, community support groups, and follow-up with health care provider as set forth in the nationally approved guidelines. Data were collected during normal business hours at the participating clinics over a four-week period during May 2013 and was collected under clinic staff supervision. On each day of data collection the clinic managers pulled charts that met the criteria for inclusion and presented them to the researchers. The first 100 charts pulled that met the criteria at each clinic were used. The charts were returned to the clinic

managers at the end of each data collection day. The data were then recorded on a researcher designed data analysis worksheet (Appendix C). The worksheet consisted of a series of inquiries derived from the research questions that researchers answered for each individual patient during chart review.

Methods of Data Analysis

Data were subjected to analysis and then were reported using means and standard deviations to describe the characteristics of the asthma patients. Percentages were used to report health care providers compliance with current national guidelines. Chi-square analyses were used to glean additional data regarding differences in asthma education offered to patients based on demographic characteristics. Data obtained reflected the providers' adherence to the recommended national guidelines regarding the education of asthma patients about the disease. Results can be used to demonstrate to providers the areas in which asthma management and treatment can be improved in order to reduce exacerbations.

CHAPTER IV

Presentation of Findings

Each of the three researchers collected data on 100 patients with a diagnosis of asthma using the data analysis worksheet (Appendix B). The researchers compiled the data on one computer spreadsheet before the data were analyzed. Analysis was performed using Minitab statistical software, version 16. A summary of the data results is demonstrated in Table 1. Specific findings are discussed for each research question individually.

Participant Characteristics

Data were collected from a total of 300 patients (176 female, 124 male), ranging in age from 18 to 89 years ($M = 39.19$, $SD = 19.95$). Of the patients, 120 were Caucasian, 76 were African American, and 104 were of another ethnicity. Regarding payer source, 31 of the participants were uninsured, 118 were covered by government insurance (Medicare or Medicaid), and a private insurance company covered 151 of the participants.

Results

The following questions were evaluated in this study:

1. Was patient education initiated at the time of diagnosis or follow-up visits?
2. Did the educational information include asthma, medications, self-monitoring of symptoms, and peak flow?
3. Was the patient given a written asthma action plan that included information on daily management and treatment of asthma exacerbations?
4. Was the patient encouraged to participate in community support groups?

5. Was there an appointment made within six months for a routine asthma follow-up?

Table 1. *Education Provided According to Research Question*

	n	Q1: Education	Q2: Medications and monitoring	Q3: Action plan	Q4: Support groups	Q5: Follow up appointment
Overall	300	86.96%	53.85%	6.02%	4.35%	62.88%
Gender						
Female	176	86.29%	53.71%	5.14%	5.14%	57.14%
Male	124	87.90%	54.03%	7.26%	3.23%	70.97%
Ethnicity						
Caucasian	120	86.55%	42.02%	8.40%	7.56%	76.47%
African American	76	89.47%	35.53%	9.21%	5.26%	71.05%
Other	104	85.58%	80.77%	0.96%	0.00%	41.35%
Payer Source						
No Insurance	31	86.67%	60.00%	10.00%	3.33%	50.00%
Gov. Insurance	118	91.53%	46.61%	3.39%	5.93%	75.42%
Private Insurance	151	83.44%	58.28%	7.28%	3.31%	55.63%

Patients receiving some education on first visit to the provider. Overall, 86.96% of patients were provided education upon diagnosis or had it continued if it was a follow-up appointment. There was no significant difference in this value based on ethnicity ($\chi^2(2,N=299)=0.616$, $p=0.735$), gender ($\chi^2(1,N=299)=0.167$, $p=0.682$), or payer source ($\chi^2(2,N=299)=3.817$, $p=0.148$).

Patients receiving all education components on first visit to the provider. Of all patient charts studied, 53.85% of the participants received education that included all of the required components: asthma triggers, asthma symptoms, medications and peak flow rates. There was a significant difference in the incidence of this education based on ethnicity ($\chi^2(2,N=299)=47.297$, $p<0.001$), with other ethnicities receiving the education

at a higher incidence than Caucasian and African American patients. There was no significant difference in this value based on gender ($\chi^2(1,N=299)=0.003$, $p=0.957$) or payer source ($\chi^2(2,N=299)=4.137$, $p=0.126$).

Asthma action plans. Overall, 6.02% of patients were given a written asthma action plan by their provider. There was a significant difference in this value based on ethnicity ($\chi^2(2,N=299)=7.266$, $p=0.026$), with Caucasian and African American patients receiving the written action plan more often than other ethnicities. There was no significant difference in the prevalence of written action plans based on gender ($\chi^2(1,N=299)=0.574$, $p=0.449$) or payer source ($\chi^2(2,N=299)=2.710$, $p=0.258$).

Community support groups. Of the patient charts studied, 4.35% indicated that the provider gave the patient information on community support groups. This occurrence was significantly higher with Caucasian and African American patients as compared to other ethnicities ($\chi^2(2,N=299)=7.838$, $p=0.020$). There was no significant difference in this value based on gender ($\chi^2(1,N=299)=0.641$, $p=0.423$) or payer source ($\chi^2(2,N=299)=1.177$, $p=0.555$).

Follow-up appointments within six months of prior visit. Overall, 62.88% of patients received a follow-up appointment. However, this value varied significantly based on ethnicity ($\chi^2(2,N=299)=32.251$, $p<0.001$), gender ($\chi^2(1,N=299)=5.943$, $p=0.015$), and payer source ($\chi^2(2,N=299)=13.487$, $p=0.001$). Males were more likely to have a follow-up appointment made than females, Caucasian and African American patients were more likely to have a follow-up appointment made than other ethnicities, and patients paying with government insurance were more likely to have a follow-up appointment made compared to other payer sources.

Overall Results Based on Research Questions

Figure 1 demonstrates the overall provider adherence to national asthma education guidelines. Figure 1 shows how often all providers in this study performed: At least some asthma education, even if they did not educate on every required category (medications, triggers, symptoms, and peak flow rates), the amount of patients that received education regarding all the required categories (medications, triggers, symptoms, and peak flow rates), the amount of times an asthma action plan was provided, and the number of times the providers scheduled a follow-up visit within six months.

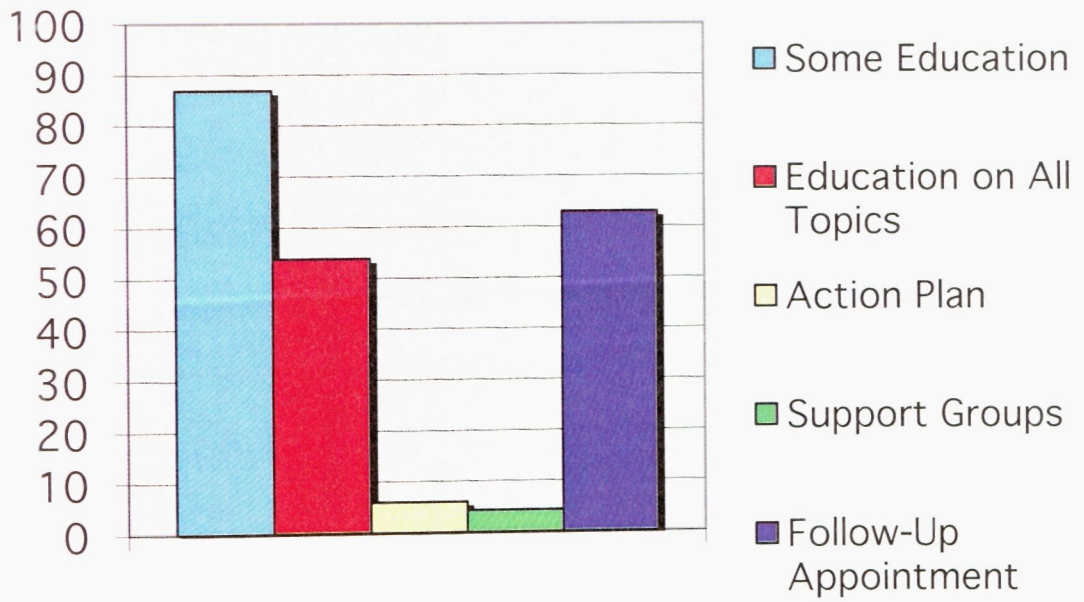

Figure 1. Overall results by research question

Summary of Findings

In conclusion, most patients (86.96%) received asthma education on their first visit to the provider, whether for an initial diagnosis or follow-up appointment, when another provider made the initial diagnosis. More than half of patients were instructed on asthma, asthma medications, self-monitoring, and peak flow rates. Also, more than 60%

of patients were scheduled for a follow-up visit within six months. However, as shown in Table 1, providers rarely met national guidelines regarding written asthma action plans and counseling patients on community support groups. Therefore, the researchers will educate other healthcare providers about areas in which to improve in asthma management and also incorporate all of the national asthma guidelines into their practice.

CHAPTER V

Summary and Conclusions

The purpose of this study was to assess healthcare providers' compliance with the clinical guidelines set forth by the National Heart Lung and Blood Institutes (NHLBI) for the education of asthma patients. The researchers sought to determine whether adult asthma patients received adequate education regarding their disease process and treatments. Dorothea Orem's Theory of Self-Care was used to guide the research, which states that if patients are educated about improving their health and are able to take the appropriate actions, they will do so. The questions asked by the researchers of this study included the following:

1. Was patient education initiated at the time of diagnosis?
2. Was patient education provided at follow-up visits?
3. Did the educational information include asthma, medications, self-monitoring of symptoms, and peak flow?
4. Was the patient given a written asthma action plan that included information on daily management and treatment of asthma exacerbations?
5. Was the patient encouraged to participate in community support groups?
6. Was there an appointment made within six months for a routine asthma follow-up?

The research was conducted in three clinical sites in Mississippi that included a nurse practitioner managed clinic, a family clinic that utilized family physicians and nurse practitioners, and a pulmonology clinic. A convenience sample of 300 medical

records was selected for the study. Inclusion criteria for patient charts were that belong to adults with a primary diagnosis of asthma. The researchers audited 300 charts, which met the inclusion criteria for the study. The researchers designed a data collection tool, which was used to collect and record data.

Summary of Findings

The data collected indicate that the providers are not complying with the NHLBI guidelines asthma education. The total percentage of patients for whom education was initiated upon diagnosis or continued at follow-up visits was 86.96%. Ethnicity, gender, and payer source had no affect on this finding. According to the data, 53.85% of the participants received education regarding medication and self-monitoring. The results were statistically significant for the incidence of this education based on ethnicity ($\chi^2(2,N=299)=47.297$, $p<0.001$). The incidence of other ethnicities receiving education was greater than that of Caucasian and African American patients. Providers gave only 6.02% of the patients studied a written asthma action plan. The difference in this value based on ethnicity ($\chi^2(2,N=299)=7.266$, $p=0.026$) was statistically significant. Caucasian and African American patients received the written action plan more often than other ethnicities.

Providers gave the patient information on community support groups in 4.35% of the patient charts studied. This finding was significantly higher with Caucasian and African American patients as compared to other ethnicities ($\chi^2(2,N=299)=7.838$, $p=0.020$). The percentage of patients receiving a follow-up appointment was 62.88%. Significant variability was noted based on ethnicity ($\chi^2(2,N=299)=32.251$, $p<0.001$), gender ($\chi^2(1,N=299)=5.943$, $p=0.015$), and payer source ($\chi^2(2,N=299)=13.487$, $p=0.001$).

Females were less likely to have a six-month follow-up appointment scheduled than males. Caucasian and African American patients were instructed to follow-up in six months more often than other ethnicities. Patients paying with government insurance received follow-up appointments within six months more frequently than patients with other payer sources.

Discussion of Findings

Overall, the majority of providers documented at least some asthma education upon the initial diagnosis of asthma and upon follow-up visits for asthma (86.96%). On initial interpretation, this would appear to be an excellent percentage, reflecting that in less than 14% of the charts reviewed the provider failed to provide any asthma education at all. However, this percentage was substantially lower (53.85%) when the researchers began to look at the specifics of asthma education, such as medications, self-monitoring of symptoms through the use of peak flow meters, trigger management, and other information recommended by the NHLBI (2012) as essential for asthma education. Teaching of this material seems to be substantially better than that in the Rank et al. (2010) study which documented that only 3% of the asthma office visits they examined included trigger management advise. Specific elements of asthma education, including consistent teaching across time, has been found to reduce hospitalizations and lost workdays in adults with asthma (Gibson et al., 2009; NHLBI 2012). Failure to educate may be one reason Mississippi's asthma morbidity and mortality rank above the national average (Baptist et al., 2011).

The NHLBI (2012) assert the importance of a written asthma education plan in the success of home asthma maintenance. This assertion was validated in a study by

Gibson et al. (2009) who found that adult patients with asthma did much better when a written plan was part of their health care education. In the current study it was revealed that a shockingly low 6.02% of asthma patients documented to have received a written asthma education plan that included information on daily management and treating asthma exacerbations. Even taking into account that failure to document giving patients such a plan was the issue for some of the providers, this low percentage reveals that the vast majority of patients most likely do not receive a written plan. This finding was disappointing to the student researchers given that a substantial number of providers for the study were nurse practitioners whose education includes a strong emphasis on education. Unfortunately, previous studies have documented a failure by providers to perform adequate asthma education. Failure to provide written management plans was also documented in the Braido et al. (2011) study where only half the subjects were given written asthma management plans and 74% received no written information at all. The failure of health care providers to give patients this most essential piece of asthma management should, therefore, be addressed at the level of formal education in institutes of higher learning and further addressed at continuing education offerings across the country on a consistent basis.

The findings further revealed that Caucasian and African American patients received written plans significantly more often than clients of other ethnicities. Although the latter finding may have been due to a coding aberration on the part of the researchers, it is possible that patients from other ethnicities may not have received action plans because of the lack of availability of culturally and language appropriate teaching plans. Conversely, George et al. (2009) cited that the poor, adult, African American female

asthmatics in their study received extremely poor asthma education. These findings are of particular concern given that asthma is more prevalent in females, African Americans, Puerto Ricans, and low-income groups. Particular attention should be given to minorities for whom prepared literature may be sparse and for whom language and cultural barriers might exist.

Even lower than the percentage of patients who received written education plans was the percentage of patients who received information on community support groups. An astoundingly low 4.35% of charts surveyed had documentation of referral or information on community support groups for asthma. Again, it appeared that Caucasians and African Americans were given this information significantly more often than were patients of other ethnicities. Again, this significant finding may have been due to a coding aberration. However, findings from the literature reveal that asthma sufferers from several minorities (Akinbami et al., 2009) are less likely to receive appropriate treatment. Moreover, George (2009) found that poor African American women were more likely to suffer with asthma in isolation, adhering to over-the-counter therapies for asthma and avoiding health care provider recommendations.

These findings reflect that in general providers for the patients whose charts were reviewed for this study are doing a poor job of educating asthma patients about their disease. Considering that large numbers of asthma patients lose work, require hospitalization, and even continue to die with the disease, it is imperative that both nurse practitioners and other types of health care providers improve asthma education and overall health literacy regarding asthma for their patients. Nurse practitioners could be at the forefront of developing asthma education programs and written asthma action plans

that are ready for patients when they present with their first symptoms. Only with good self-management can most individuals with asthma thrive and maintain long-term control of a chronic condition that still kills thousands annually.

Limitations

Limitations for this study included the possibility that the information obtained from the three clinics could have influenced the accuracy of the final results. The researchers noted that one of the clinics did not always discern race in the chart. Instead of being able to record Caucasian, African American, etc. for race, the researchers coded other ethnicity for the instances in which race was unknown. It is likely that many of these "unknowns" would have fallen into the Caucasian or African American categories had they been documented. The overall results are possibly skewed as the Chi-square analyses reflected that several of the research questions varied significantly by race. It is possible that these significant correlations are false and are, instead, a result of the researchers coding "other" instead of "unknown" fort he variable of race.

Another limitation was the researchers not being able to witness the asthma education given by health care providers. By conducting retrospective chart reviews, the researchers may not have captured all of the teaching done by providers. There could have been instances in which health care providers performed asthma education according to national guidelines, but failed to document it in the electronic medical record. However, since this study was based on the assumption that provider performed education is documented, implications and recommendations for this study are based on the findings as they are reported.

Finally, the results may have been altered due to the small sample size and select population used for the study. Only a small number of providers from three clinics were involved in this study. A larger sample of clinics and healthcare providers would likely increase the reliability of the results.

Implications for Nursing Education

The researchers recommend that providers attend more continuing education seminars focusing on asthma. The purpose of these seminars would be to present current guidelines and updated standards of practice. Reviewing this information with providers will, hopefully, motivate them to be more diligent in providing education to asthma patients. The researchers also recommend that schools of medicine and schools of nursing teach more regarding asthma education guidelines and emphasize adhering to them. If guidelines are a focus from the beginning of education and training, providers are more likely to be compliant.

Implications for Nursing Practice

The National Heart Lung and Blood Institute (NHLBI) guidelines state that self-management education for asthma patients is vitally important to equip patients with the skills needed to manage the disease and improve outcomes. Asthma exacerbations contribute to higher medical costs and absences from work and school. Improper education about asthma management at home can lead to disability and even death. Since there are over 25 million people in the United States living with this condition, self-management education should be provided. Findings from this study imply that such education is not being done consistently and is not being documented by health care providers. In order for healthcare providers to be compliant with the NHLBIs clinical

practice guidelines, they must do a number of things. Education must be initiated at the time of diagnosis and continue through follow up visits. It must include medications, self-monitoring of symptoms, and peak flow. A written asthma action plan must be given to patients with instructions for daily management and exacerbation treatment. Routine follow-ups are necessary to monitor disease progression and maintenance. Providers should encourage participation in community support groups to help patients cope with the disease. According to Orem (2004), patients will perform self-care functions if they are educated regarding their health and are capable of performing the required activities. Healthcare providers are responsible for providing this education to asthma patients. The first step toward improving asthma education and eventually patient outcomes is to assess the extent of education patients are currently receiving. The results of the research can then be implemented into nursing practice. All healthcare providers should assess and educate patients in accordance with the NHLBI guidelines.

Recommendations

Based on the results of this study, the following recommendations are made for nursing research:

1. Replication of this study using a larger sample size.
2. Conduction of a similar study that delineates whether education is provided more often and more consistently by nurse practitioner providers, physician providers, or other types of providers.
3. Replication of the study in a different geographical region in an effort to determine trends across the United States.
4. Replication of the study using a population of children with asthma.

The following recommendations are made for nursing education:

1. Continuing education for both nurse practitioner and physician providers that includes updates about national guidelines for asthma management.
2. Emphasis on the importance of documenting all patient education in the chart in both baccalaureate and master's programs in nursing.

Summary

The purpose of this study was to assess healthcare providers' compliance with NHLBI clinical practice guidelines for the education of adult asthma patients. It was determined that while most patients of the study received education to some extent, 13.04% did not. In this study, Caucasian and African American participants received an asthma education plan, information on community support groups, and routine follow-up appointments more often than participants of other ethnicities. The majority of education on medication and self-monitoring was given to other ethnicities, as opposed to Caucasians and African Americans. Overall, some degree of education was noted for the majority of participants.

According to the NHLBI, all patients with an asthma diagnosis should be given education regarding their disease process and management. Healthcare providers should offer this education to their asthma patients as part of the routine treatment for the disease. While an abundance of educational material exists concerning the course of asthma, the researchers believe the relationship between healthcare provider and patient provides the best ground for the transmission of thorough, updated information. It gives the patient a chance to ask questions and receive feedback to reach their goal of experiencing better disease management and improved quality of life.

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APPENDIX A: ASTHMA GUIDELINES

Key Points: Education for a Partnership in Asthma Care

- Asthma self-management education is essential to provide patients with the skills necessary to control asthma and improve outcomes.
- Asthma self-management education should be integrated into all aspects of asthma care, and it requires repetition and reinforcement. It should:

  — Begin at the time of diagnosis and continue through follow-up care.

  — Involve all members of the health care team.

  — Introduce the key educational messages by the principal clinician, and negotiate agreements about the goals of treatment, specific medications, and the actions patients will take to reach the agreed-upon goals to control asthma.

  — Reinforce and expand key messages (e.g., the patient's level of asthma control, inhaler techniques, self-monitoring, and use of a written asthma action plan) by all members of the health care team.

  — Occur at all points of care where health professionals interact with patients who have asthma, including clinics, medical offices, emergency departments and hospitals, pharmacies, homes, and community sites (e.g., schools, community centers).

    ♦ Strong evidence supports self-management education in the clinic setting.

♦ Observational studies and limited clinical trials support consideration of focused, targeted patient education in the ED setting (e.g., teaching inhaler technique and providing an ED asthma discharge plan with instructions for discharge medications and for increasing medication or seeking medical care if asthma should worsen). Studies demonstrate the benefits of education in the hospital setting.

♦ Studies of pharmacy-based education directed toward understanding medications and teaching inhaler and self-monitoring skills show the potential of using community pharmacies as a point of care for self-management education. Studies report difficulties in implementation, but they also demonstrate benefits in improving asthma self-management skills and asthma outcomes.

♦ Studies demonstrate the benefits of programs provided in the patient's home for multifaceted allergen control, although further evaluation of cost-effectiveness and feasibility for widespread implementation will be helpful.

♦ Some, but not all, school-based programs have demonstrated success in reducing symptoms and urgent health care use and in improving school attendance and performance. Proven school-based programs should be considered for

implementation because of their potential to reach large numbers of children who have asthma and provide an "asthma-friendly" learning environment for students who have asthma.

♦ Emerging evidence suggests the potential for using computer and Internet programs incorporated into asthma care.

- Provide all patients with a written asthma action plan that includes two aspects: (1) daily management and (2) how to recognize and handle worsening asthma. Written action plans are particularly recommended for patients who have moderate or severe persistent asthma, a history of severe exacerbations, or poorly controlled asthma.

- Regular review, by an informed clinician, of the status of the patient's asthma control is an essential part of asthma self-management education. Teach and reinforce at every opportunity (EPR–2 1997):

— Basic facts about asthma

— What defines well-controlled asthma and the patient's current level of control

— Roles of medications

— Skills: e.g., inhaler technique, use of a valve holding chamber (VHC) or spacer, and self-monitoring

— When and how to handle signs and symptoms of worsening asthma

— When and where to seek care

— Environmental exposure control measures

- Develop an active partnership with the patient and family by (EPR–2 1997):

— Establishing open communications.

— Identifying and addressing patient and family concerns about asthma and asthma treatment.

— Identifying patient/parent/child treatment preferences regarding treatment and barriers to its implementation.

— Developing treatment goals together with patient and family.

— Encouraging active self-assessment and self-management of asthma.

- Encourage adherence by:

— Choosing a treatment regimen that achieves outcomes and addresses preferences that are important to the patient/caregiver.

— Reviewing the success of the treatment plan with the patient/caregiver at each visit and making adjustments as needed.

- Tailor the asthma self-management teaching approach to the needs of each patient.

Maintain sensitivity to cultural beliefs and ethno cultural practices.

- Encourage development and evaluation of community-based interventions that provide opportunities to reach a wide population of patients and their families, particularly those patients at high risk of asthma morbidity and mortality.

- Asthma self-management education that is provided by trained health professionals should be considered for policies and reimbursements as an integral part of effective asthma care; the education improves patient outcomes and can be cost-effective in improving patient outcomes.
- Implement multidimensional, interactive clinician education in asthma care including, for example, case discussions involving active participation by the learners.
- Consider participation in programs to enhance skills in communicating with patients .
- Encourage development and use of clinical pathways for management of acute asthma.
- Develop, implement, and evaluate system-based interventions to support clinical decision-making and to support quality care for asthma.

APPENDIX B: LETTER OF INFORMED CONSENT

PROJECT NAME: The Effect of Asthma Education on Disease Management
INSTITUTION: Mississippi University for Women Graduate Nursing Department

Martin Room 307
1100 College St. MUW-910
Columbus, MS 39701-5800
1-877-462-8439 ext. 7323

INVESIGATOR TO CONTACT:
Kelly Massey RN, BSN
Telephone: 662 744-2829
email: kmasseyrn@gmail.com

OTHER INVESTIGATORS
Rebekah Overstreet RN, BSN
Telephone: 662 312-0356
email: rjh152@gmail.com

Franklin Golden RN, BSN
Telephone: 601 646-3747
email:golden_franklin@yahoo.com

ADVISORS NAME:
Johnnie Sue Wijewardane, PhD, FNP-BC
Telephone: 662 329-7323
email:jwijewardane@nsgslp.muw.edu

DEGREE PURSUED: Nurse Practitioner

Nurses will collect data or conduct a study procedure (e.g. data collection, assessment)

CLINICAL RESOURCES REQUIRED

1. Purpose of the study: The researchers' purpose is to determine if providers are following nationally approved guidelines for patient education intended to help patient maintain normal lung function/activity levels, prevent exacerbations, and minimize the need for emergency care/hospitalization.
2. Type and number medical records sought: The researchers will gather data from a total of 100 medical records of diagnosed asthma patients.
3. Clinical area or units to be involved: Medical records room.
4. Time of day when data will be collected: During normal business hours.
5. Data collection period: From: May 1, 2013 To: May 30, 2013
6. Is there any equipment involved in this protocol? No

As the investigator of this research project, I certify the following:
-The information provided in this application is complete and accurate.
-Subject confidentiality will be of paramount concern, and every effort will be made to protect subjects' rights and welfare.
-The research will be performed according to ethical principles and in compliance with all federal, state, and local laws, as well as, institutional regulation and policies regarding the protection of medical records.
-All members of the research team will be kept apprised of research goals.
-I will obtain approval for this research study and any subsequent revisions prior to initiation.
-My signature below provides written assurance that subjects Protected Health Information (PHI) will not be used or disclosed except as required by law, for authorized oversight of research.

Sincerely,

Kelly Massey, Rebekah Overstreet, and Franklin Golden

I have read this letter of consent and been given the opportunity to ask questions pertaining to this research project. I consent to participate in the project under the terms stated above.

_____ _____

Name and Title Date

APPENDIX C: ASTHMA DATA COLLECTION WORKSHEET

1. Age _____
2. Race _____
3. Payer Source _____
4. Gender _____
5. Was education initiated on diagnosis and continued during second visit? Yes No
6. Did the provider educate regarding medications and self-monitoring (peak flow or symptoms)? Yes No
7. Did the provider give the patient a written asthma action plan that included daily asthma management and treating an asthma exacerbation? Yes No
8. Did the provider give information on community support groups? Yes No
9. Was there an appointment made within 6 months for a routine asthma follow-up? Yes No

APPENDIX D: IRB APPROVAL

Mississippi University for Women
Institutional Review Board

Identification of Investigators, Brief Description of Investigators and Brief Description of Proposed Research Review [1]

Form A

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1. About the Researchers: February 18, 2013

Franklin Golden, Kelly Massey, and Rebekah Overstreet
Principal investigator: Kelly Massey
E-mail Address: kmasseyrn@gmail.com
Department: Department of Graduate Nursing
Telephone: 662-329-7323
☒ If student, name of Research Advisor: Johnnie Sue Wijewardane, PhD, FNP-BC
☒ Research Advisor's E-mail Address: jwijewardane@nsgslp.muw.edu

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2. Purpose of the Research:

☐ Undergraduate Research
☐ Master's Thesis
☐ Doctor of Nursing Practice
☐ Coursework
☐ Faculty Research
☐ Assisting Faculty Research
☒ Other: graduate research

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3. Title of the Research:

Healthcare Provider Adherence to Asthma Education Guidelines

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4. External Funding:

Has this project been submitted for external funding? ☐ Yes ☒ No
If yes, list all agencies. For each agency, list the status (Approved, Pending, Denied) and date.
Click here to enter text.

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5. Location of the Study:

One local pulmonary clinic in which patients managed by a pulmonologist will be studied; one local family practice clinic in which patients managed by a family medicine physician will be studied; one local family medicine clinic in which patients managed by a nurse practitioner will be studied.

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6. Projected Duration of the Study:

February 18, 2013 – August 1, 2013

7. Project Summary: (2-3 sentences)

According to the National Heart Lung and Blood Institute there are more than 25 million people in the United States living with asthma. Asthma exacerbations contribute to high medical costs and absences from work and school. Asthma patients accumulate approximately $2,000.00 more in medical costs per year than patients without asthma. The avoidance of triggers and early treatment of symptoms is essential to decrease the severity of exacerbations and the need for acute healthcare treatment. The significance of this study is that that lack of education often leads to asthma exacerbations. However, with current medical advances and thorough education, most people can manage the disease at home so they experience few, if any, symptoms, less medical expense, and fewer absences from work or school. In our study we will identify asthma patients, whether or not they are receiving asthma education, and what impact it has on their disease maintenance.

8. Number of Participants Expected:

300

9. Human Participants*: (check all that apply)

- ☒ Adults (18 years or older)
- ☐ Minors (less than 18 years) - if so, have you included a line on the consent form for the parent/guardian signature
- ☐ Pregnant Women
- ☐ Fetuses
- ☐ Economically or Educationally Disadvantaged
- ☐ Elderly
- ☒ Patients
- ☐ Non-English Speaking
- ☐ Mentally Disabled
- ☐ Prisoners, Parolees, or Incarcerated
- ☐ Elected or Appointed Officials or Candidates in Public Office
- ☐ Students from a class taught by principal investigator

*Human participants are living individuals, from whom an investigator obtains data through intervention or interaction with the individual or identifiable information from some other source (e.g., medical records, third party, etc…).

10. Type of Data: (check all that apply)

- ☐ Interviews
- ☐ Questionnaires or Surveys
- ☒ Medical Records Review
- ☐ Existing Data Banks, Archives, or Documents
- ☐ Physiological Measurements or Blood Samples
- ☐ Observations/Record of Public Record
- ☐ Education Tests (e.g. Cognitive, Aptitude, or Achievement)

11. Nature of Information to Be Obtained: (check all that apply)

- ☐ Participants and their responses cannot be identified
- ☐ Filming, Video or Voice-Recording
- ☐ Involving the use of instructional strategies and/or techniques
- ☐ Collected with permission or in collaboration with another agency/institution

12. Other: (check all that apply)

- ☐ Participants are given incentives (money, extra credit, etc…)
- ☐ Research conducted in an educational setting
- ☐ Project involves temporary deception of participant
- ☐ Project is time sensitive or in response to an unforeseen research opportunity

Principal Investigator Signature: Date:

Faculty Advisor Signature: Date:

*Please note: If you are a student, you are required to have your application reviewed by your faculty advisor. To indicate that it has been reviewed, the IRB requires that your faculty advisor sign this coversheet.

Form B

Check one of the following:

- ☒ This is a new research project
- ☐ This is an on-going investigation. For on-going investigations complete all items included those in the shaded areas.

I. Research Summary

Briefly describe the purpose and nature of the present research proposal. State what, if any, benefit is to be gained by the subject(s) or what information is to be added to the general body of knowledge as a result of this research.

The purpose of this study is to determine if providers are following nationally approved asthma education guidelines. These guidelines were written to help patients maintain normal lung function and activity levels, prevent exacerbations, and minimize the need for emergency care and hospitalization. It is necessary for health care providers to perform and document asthma education on every visit to prevent asthma exacerbations.

II. Participants and Recruitment

1. How many subjects will be involved in the research? Estimates or ranges are acceptable. Please be aware that if you recruit over 10% more participants than

originally requested, you will need to submit a request to modify your recruitment numbers.

300

2. Describe how subjects will be recruited. Describe any compensation or incentives that will be offered. Please provide the IRB with any recruitment materials that will be used (***flyers, letters of invitation, e-mail messages, recruiting scripts***, *etc.*).

Retrospective chart review of patients 18 year of age or older. No incentives will be provided.

3. Describe inclusion/exclusion criteria. List specific eligibility requirements for subjects (or describe screening procedures), including those criteria that would exclude otherwise acceptable subjects.

Patients with asthma that are 18 years of age or older will be included.

4. Explain any sampling procedure that might exclude specific populations.

None

5. Disclose any relationship between researcher and subjects - such as, teacher/student; employer/employee.

None

6. Check any vulnerable populations included in this study
   - ☐ Minors (less than 18 years) - if so, have you included a line on the consent form for the parent/guardian signature
   - ☐ Pregnant Women
   - ☐ Fetuses
   - ☐ Economically or Educationally Disadvantaged
   - ☐ Elderly
   - ☐ Patients
   - ☐ Non-English Speaking
   - ☐ Mentally Disabled
   - ☐ Prisoners, Parolees, or Incarcerated
   - ☐ Elected or Appointed Officials or Candidates in Public Office
   - ☐ Students from a class taught by principal investigator

7. If you have checked any of the populations in item 6, state the necessity for doing so. Please indicate the approximate age range of the minors to be involved.

No minors will be involved. Patients will be 18 years of age and older.

Retrospective chart review; no contact will be made with participants.

Form C

I. Research Procedures and Methods

1. Describe the **informed consent process**. Include a detailed description of what you will

   a. From whom will you obtain consent. If a minor, you need to obtain consent from a parent/guardian.
   b. State exactly what you will tell the participant and/or parent/guardian
   c. If a consent form is to be used, ***attach a copy***.
   d. Alternatively, provide an explanation of why informed consent will not be obtained.

   Informed consent will not be obtained because only a retrospective chart review will be conducted.

2. In lay language, **describe completely all procedures** to be followed during the course of the experimentation. Provide sufficient detail so that the Committee is able to assess potential risks to human subjects. In order for the IRB to completely understand the experience of the subjects in your project, please provide a detailed outline of everything subjects will experience as a result of participating in your project.

   This study will be conducted by retrospective chart review and no there will be a minimal risk to the subjects as their medical information will have no patient identifiers and no actual physical contact will be made with participants. The potential for psychological harm exists related to accessing medical and personal information. However, this risk will be minimized by no identifiers being recorded in the data collected for research purposes. Data will be maintained on a password protected file on a password protected USB drive. Any information collected on paper will be destroyed via shredder after input into secure electronic file.

3. Describe how much time will be required with each participant.

   Not applicable

4. Describe the **data collection procedures and materials**. To the extent possible, ***provide actual or sample materials*** (e.g. questionnaires, interview protocols, etc.).

   Once consent is obtained the researchers will have the clinic manager from

each clinic pull 100 medical records for review (each researcher will examine 100 charts each for a total of 300 charts) that meet the submitted criteria: diagnosis of asthma and age 18 years and older. The researchers will examine the records to determine if asthma education was performed according to national guidelines and evaluate for maintenance or progression. Data will be recorded on the attached data collection worksheet. Then, the data collection worksheets will be scanned and maintained on a password protected file on a password protected USB drive. Any information collected on paper will be destroyed via shredder after input into secure electronic file.

5. How will data be recorded and stored?

Once consent is obtained the researchers will have the clinic manager from each clinic pull 100 medical records for review (each researcher will examine 100 charts each for a total of 300 charts) that meet the submitted criteria: diagnosis of asthma and age 18 years and older. Data will be recorded on the attached data collection worksheet. Then, the data collection worksheets will be scanned and maintained on a password protected file on a password protected USB drive. Any information collected on paper will be destroyed via shredder after input into secure electronic file.

II. Potential Risks

1. State the potential risks (psychological, social, physical, financial, legal or other) connected with the proposed procedures and explain the steps taken to minimize these risks.

There is a minimal risk to the patients only pertaining to the medical and personal data that will be examined.

2. Will there be a request for information that subjects might consider to be personal or sensitive (e.g. private behavior, economic status, sexual issues, religious beliefs, or other matters that if made public might impair their self-esteem or reputation or could reasonably place the subjects at risk of criminal or civil liability)?
☐ Yes ☒ No
If yes, please describe and explain the steps taken to minimize these risks.
Click here to enter text.

3. Could any of the study procedures produce stress or anxiety, or be considered offensive, threatening, or degrading? ☐ Yes ☒ No
If yes, please describe why they are important and what arrangements have been made for handling an emotional reaction from the subject.
Click here to enter text.

4. Describe the necessary **safeguards** to be applied to protect the subject. In this section make sure to include provisions for protecting the privacy of participants and provisions for maintaining the confidentiality of data (including the location/procedure for data storage and date for destruction of personal information).

   The questionnaire used to gather data will not contain any patient information including patient name, medical record number, birth date, or social security number. Charts will be kept out of view in a separate area while data collection takes place. No patient identifiers or charts will be taken from the clinic. The Health Insurance Portability and Accountability Act (HIPAA) regulations will be maintained to protect patient confidentiality. Data will be recorded on the attached data collection worksheet. Then, the data collection worksheets will be scanned and maintained on a password protected file on a password protected USB drive. Any information collected on paper will be destroyed via shredder after input into secure electronic file.

5. Is there any deception of the human subjects involved in this study? If yes, please describe why it is necessary and describe the debriefing procedures that have been arranged.

   No

6. Is this study going to administer a drug or other medical procedure to the participants in the study? If yes, potential or established side effects of drugs or procedures used in investigation are:

   No

7. **On-Going Investigations Only.**
   a. Number of subjects studied:

   b. Documented adverse psychological, behavioral, physiological and pharmacological effects of study:

   c. Precautions used to detect, prevent, minimize or reverse adverse side effects:

   d. Change in methods or procedures (when applicable):

   e. Change in intent, direction or scope of research (when applicable):

III. Potential Benefits

This does not include any form of compensation for participation.
What, if any, direct benefit is to be gained by the subject? If no direct benefit is expected, but indirect benefit may be expected (knowledge may be gained that could help others), please explain.

The patients may gain indirect benefits from the research project. By conducting the research project, the researchers will evaluate the asthma education practices of healthcare providers according to national guidelines. Based on the project findings, the researchers hope to encourage healthcare providers to continue educating patients according to the guidelines or begin educating patients in areas that are forgotten. Patients that are not being educated according to the national guidelines, will hopefully understand more about asthma management and treatment. In turn, these patients will hopefully have fewer asthma exacerbations as a result of better education.

IV. Compensation

Please keep in mind that the logistics of providing compensation to your subjects (e.g., if your business office requires names of subjects who received compensation) may compromise anonymity or complicate confidentiality protections. If, while arranging for subject compensation, you must make changes to the anonymity or confidentiality provisions for your research, you must contact the IRB office prior to implementing those changes.

1. Describe compensation.

   None

2. Explain compensation provisions if the subject withdraws prior to completion of the study.

   None

3. If class credit will be given, list the amount and alternative ways to earn the same amount of credit.
   Click here to enter text.

V. Additional Information

☒ If a questionnaire, survey or interview instrument is to be used, attach a copy to this proposal.
☒ Attach a copy of the informed consent form to this proposal.
☐ Please provide any additional materials that may aid the IRB in making its decision.

VI. Additional Resources for IRB Federal & University Guidelines

1. Mississippi University for Women Faculty Council, March 25, 1980.

2. United States Department of Health, Education, and Welfare: Policy on Protection of Human Subjects, 1971.
3. Human Subjects Research (45 CFR 46), Protection of Human Subjects, Effective July 14, 2009. http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html

[1] *This revised IRB form is a reorganization of all the relevant information from the original IRB forms A, B and C referenced in the IRB policy: http://web2.muw.edu/index.php/en/personnel-policies.html link: P.S. 3503 Institutional Review Board (pdf)*
Form A - Identification of Investigators and Brief Review of Proposed Research (submitted by the researcher)
Form B - Evaluation Form for Committee Review (submitted by the researcher)
Form C - Sample of Informed Consent (submitted by the researcher)
This was done to improve clarity, ease of use and to eliminate redundant information.