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Knowledge of Asthma and the Utilization of Certified Asthma Educators in a Health Law  
Partnership Legal Services Clinic and a Metropolitan Children's Hospital: A Needs Assessment

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A Thesis

Presented in Partial Fulfillment of the Requirement for the

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In

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Under the supervision of Dr. Lynda T. Goodfellow

In

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## ABSTRACT

**BACKGROUND:** The Health Law Partnership (HeLP) Legal Services clinic is part of the Health Law Partnership in the School of Law at Georgia State University. HeLP clinic law students learn alongside residents and medical students while working on cases involving childhood asthma, housing conditions, education, and access to healthcare for clients who are low income residents of the metro Atlanta area. **PURPOSE:** The purpose of the study was three-fold. One evaluation described the knowledge of asthma amongst the residents, medical students, and law students who practice at the HeLP clinic. The second evaluation determined the use and/or the need of certified asthma educators (AE-C) within the HeLP clinic and at Children's Healthcare of Atlanta. Thirdly, what were the gaps found in inpatient and outpatient asthma education at Children's Healthcare of Atlanta, and where can the use of AE-C's be helpful in providing effective asthma education using evidence-based practice? **METHODS:** Following IRB approval, medical students, law students and pediatric residents were invited to participate in a two-part survey to assess the perception and utilization of AE-C's and the knowledge of asthma using the National Asthma Education Prevention Program (NAEPP) guidelines. Data obtained was analyzed using SPSS, version 23. Descriptive analysis and t-tests of significance were utilized. De-identified patient data was obtained for gaps in asthma education. **RESULTS:** Thirty-one HeLP clinic members responded, 44% medical students and residents, and 32% law students completed the survey. Approximately 64% of the HeLP clinic members have 1 year or less than 1 year of experience serving in the clinic. Current data suggests that 85% of HeLP clinic members, law students and medical residents would utilize the resources of an AE-C if available within the clinic. There was no significant difference of the knowledge of asthma management between law students and medical residents ( $p = 0.008$ ). However, when reviewing individual answers of the asthma self-management guidelines, law students answered more correctly than pediatric residents. Data reported from the HeLP clinic revealed that legal aid was provided for 112 children with a diagnosis of asthma. CHOA treated 7,482 children with asthma in the Emergency Department across 2 campuses, of which 64% did not receive asthma education upon discharge. **CONCLUSION:** This study was to determine the knowledge of asthma and the use of AE-C's within the HeLP clinic and CHOA amongst law students and medical residents. No known studies have compared the knowledge of asthma and the use of an AE-C's within a health law partnership collaboration that is unique to HeLP. Further education and needs awareness is needed for physicians and those who advocate for individuals with this incurable, yet, manageable pulmonary disease. The utilization as well as awareness of AE-C's within HeLP and CHOA is strongly suggested.

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*Abbreviations:*

AARC: American Association for Respiratory Care

AE-C: Certified Asthma Educator

BLS: Bureau of Labor Statistics

CRE: Certified Respiratory Educator

CDC: Centers for Disease Control

CHOA: Children's Healthcare of Atlanta

CoARC: Commission for Accreditation for Association of Respiratory Care

GINA: Global Initiative for Asthma

GSU: Georgia State University

HCP: Health care provider

HeLP: Health Law Partnership Legal Services Clinic

NAECB: National Asthma Educator Certification Board

NAEPP: National Asthma Education Prevention Program

NBRC: National Board for Respiratory Care

RT: Respiratory Therapy

RTs: Respiratory Therapists

WHO: World Health Organization

## **CHAPTER I**

### **INTRODUCTION**

Over the past 30 years, asthma has become known as one of the most common chronic childhood conditions in the United States (Akinbami, Moorman, & Bailey, 2012). Moreover, with increased asthma incidences in children, there is also a significant financial burden to our healthcare system (Centers for Disease Control [CDC], 2016). Healthy People 2020 strongly advises that persons with asthma be provided care and education that is according to the National Asthma Education Prevention Program (NAEPP) guidelines (National Asthma Education Prevention Program [NAEPP], 2016). Additionally, minimum standards for asthma self-management education were recently established for healthcare professionals for teaching patients or caregivers how to effectively manage asthma (Gardner, Kaplan, Brown, & Krier-Morrow, 2015). One method to address the specifications needed for effective asthma education is the use of certified asthma educators who have earned the credential AE-C®. The National Asthma Educator Certification Board (NAECB) was founded to promote optimal asthma management through the asthma educator certification process (Cataletto, 2011). The AE-C exam is a psychometrically validated national exam for certifying individuals to provide effective asthma education secondary to evidenced-based practice. According to NAECB, there are currently 3,543 certified asthma educators that have earned the AE-C credential (National Asthma Educator Certification Board [NAECB], 2016). There continues to be a significant amount of healthcare providers who educate patients with asthma that do not have formal education or training in the management of asthma. Since it is not known how many practicing asthma educators who have not attempted the AE-C certification exam, the use of AE-C's is not



well-known even among healthcare providers and to those who advocate for patients with asthma. AE-C's who are involved in asthma education insure that a validated level of asthma competency is provided. Moreover, the NAECB "ensures that certified asthma educators possess comprehensive, current knowledge of asthma pathophysiology and management, including developmental theories, cultural dimensions, the impact of chronic illness, and principles of teaching-learning" (Wilson, Rapp, Jack, & Hayes, 2015). It is known that asthma interventions prevent readmissions in high healthcare users (Gardner et. al, 2015). However, asthma education and interventions at the community level are more difficult to evaluate as outcomes are not often measured consistently. Asthma continues to surge among children, especially children in "high-risk groups, such as African American children, where asthma prevalence rates have increased by almost 50% from 2001 to 2009" (Centers for Disease Control, 2016). With this surge in asthma rates, inevitably, there is a need for evidenced-based asthma education focused for children, the family, guardians and/or caregivers. Furthermore, it is challenging for children within urban, low-income communities to have access to healthcare, medicine, and a healthy home environment free from asthma triggers. Similarly, little, if anything, is known regarding the relationship between professionals, such as doctors and lawyers who provide advocacy and education to patients and families with asthma in urban, low-income communities. To this conclusion, there is a need to affirm the use and benefit of AE-C's through evidenced-based asthma education.

## **BACKGROUND**

At Georgia State University (GSU), the Health Law Partnership (HeLP) Legal Services Clinic is part of the Health Law Partnership, which is a medical-legal collaboration among Georgia State Law, Children's Healthcare of Atlanta (CHOA), Emory University School of

Medicine, Morehouse School of Medicine and the Atlanta Legal Aid Society. HeLP clinic law students learn alongside residents and medical students under the supervision of clinical faculty. Law students work on cases involving childhood asthma, housing conditions, health education, and access to healthcare. Clients referred to the HeLP clinic are low income residents of metro Atlanta, whose children have been referred to the clinic, and are receiving inpatient or outpatient care at CHOA. In 2015, CHOA treated 7,482 patients with asthma, of those patients, 1,944 (26%) were admitted and treated for an acute asthma exacerbation.

## **PURPOSE**

The purpose of this study was to determine the educational gaps within CHOA in relation to the number of inpatient and outpatient admissions for patients with the primary diagnosis of asthma. The evaluation and utilization of AE-C's within the HeLP clinic and Children's Healthcare of Atlanta is needed in order to provide asthma education by means of evidence-based practice.

## **SIGNIFICANCE**

With the increase in prevalence of asthma in children within the United States, the need for evidenced-based asthma education is essential. The unique and specialized collaboration between medical residents and law students within the HeLP clinic gives low income families the legal advocacy they need in order to have access to healthcare, medicine, and a healthy home environment free from asthma triggers. In 2015, the HeLP clinic provided legal aid to 112 cases of children with a diagnosis of asthma (S. Caley, personal communication, September, 2016). Moreover, CHOA treated 7,482 children with asthma in the Emergency Department across 2 campuses in 2015 (Children's Healthcare of Atlanta [CHOA, 2016]). A third campus at CHOA was not included within this study as no electronic charting was available to effectively track

asthma admissions. No known study has assessed a collaboration between medical residents and law students. This study aims to assess the need for AE-C's within the HeLP clinic as well as at CHOA. The desired result of this study is that all clients and patients seen by law students and medical residents through the HeLP clinic and at CHOA will have access to appropriate treatment, education and AE-C's for the advocacy of asthma management. Since it is not clear if the services of AE-C's are involved in the consultation of asthma self-management education at CHOA, an assessment of utilization and need is essential. Ultimately, this study aims to affirm practitioner certification and the use of AE-C's through performance that meets standards of practice that are evidenced-based. The following research questions were assessed in order to meet the requirements of the purpose:

### **Research Questions**

1. What is the knowledge of asthma amongst pediatric medical residents, medical students, and law students who provide advocacy at the HeLP clinic?
2. What is the perception, utilization and/or the need of AE-C's within the HeLP clinic and at CHOA?
3. Based upon inpatient and outpatient asthma admissions at CHOA in 2015, are there any gaps in asthma education at CHOA where the standardization of asthma education practices and utilization of an AE-C would be beneficial?

### **Summary**

To conclude, the HeLP clinic is a unique collaboration between medical residents and law students at CHOA and GSU. The majority of cases at the HeLP concern children with asthma. This chapter exclusively discusses the increased prevalence of childhood asthma in the United States, and the need for AE-C's to provide standards of practice of asthma care that are

evidenced-based. Furthermore, it describes the utilization and a needs-based assessment of AE-C's within the HeLP clinic and CHOA.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

#### **INTRODUCTION**

The following literature review encompasses many aspects of respiratory therapy, AE-C's, childhood asthma, and asthma advocacy in healthcare today. A computer search of databases accessed for this review includes: PubMed, Ovid and EBSCOhost, MEDLINE, MEDLINE with full text, and the Georgia State University (GSU) computerized library catalog. Search keywords used were: childhood asthma, asthma advocacy groups, certified asthma educator credential, pediatric emergency departments and asthma, advanced credentials, and respiratory therapy. The results were inclusive of a variety of articles that conferred the prevalence of childhood asthma and advocacy groups which were referenced in the content of scholarly journals and research articles. This particular review examined the literature related to certified asthma educators and asthma education, pediatric asthma in emergency departments, and advocacy for children with asthma, and respiratory therapy.

#### **Asthma, Certified Asthma Educators and Asthma Education**

Asthma is defined as a “chronic disease of the small airways...the hallmarks of asthma are chronic inflammation, reversible obstruction and airflow limitation” (Kroegel, 2009, pp. 239). In the 2016 updated guidelines, Global Initiative for Asthma (GINA) defined asthma as “the history of respiratory symptoms such as, wheeze, shortness of breath, chest tightness and cough that vary over time and intensity” (Global Initiative for Asthma [GINA], 2016). The primary treatment of asthma focuses predominantly on “pharmacotherapy...long-acting beta agonists and inhaled corticosteroids are the main medication categories used for asthmatics” (Alotaibi, 2015). Moreover, the significance of asthma action plans and protocols has become

increasingly important as a form of self-management in treating asthma symptoms. With asthma action plans and protocols, a written guideline is emphasized to patients in order to control asthma symptoms early to prevent asthma attack exacerbations. In order to achieve optimum asthma control, asthmatic patients must be involved in treatment plans, and therefore, asthma education has become a critical part of asthma management (Alotaibi, 2015).

The prevalence of asthma in children within the United States is on the rise. According to statistics provided by the Centers for Disease Control (CDC), 39.7% of children have intermittent asthma, and 60.3% of children have persistent asthma. With the increased asthma severity, the CDC reports that over 13.8 million school days were missed secondary to an asthma attack (CDC, 2016). Thus, poorly controlled asthma impairs the child's ability to attend school, can affect his/her academic performance, and also increases healthcare costs (CDC, 2016).

Karnick et al. (2007) describe the role of effective asthma education as invaluable in terms of patient outcomes and healthcare costs. Cataletto (2011) states that "disease specific education should be an important component of therapeutic management" (Cataletto, 2011, pp. 52-53).

Coffman, Cabana, Halpin, and Yelin (2008) conducted a meta-analysis on the effects of asthma education on children in the acute care setting such as hospitalizations, emergency department visits, and urgent care visits. Patients included in the study were aged 2 to 17 with a clinical diagnosis of asthma within the United States. Out of the 208 studies identified, only 37 studies met inclusion criteria. Findings were significant in that providing asthma education to pediatric patients significantly reduces the mean frequency of hospitalizations and emergency department visits. While asthma education did not affect the odds of hospitalization, it did trend to reduce the number of emergency department visits (Coffman, Cabana, Halpin, & Yelin, 2008).

The authors conclude that, “health plans should invest in pediatric asthma education or provide health professionals with incentives to furnish such education” (Coffman et al., 2008, p. 575).

A systematic review of literature also by Coffman, Cabana, and Yelin (2009) explored school-based asthma education programs and the effects on asthma self-management as well as health outcomes. They used 3 databases that indexed peer-reviewed literature. Inclusion criteria included enrollment of children age 4 to 17 years with a clinical diagnosis of asthma or symptoms consistent with asthma. As a result, 25 articles met inclusion criteria. The literature review found that school-based asthma education improved knowledge of asthma, self-efficacy, and self-management behaviors. Thus, the authors confirmed that the “effectiveness of providing asthma education in schools can augment education provided by primary care providers” (Coffman, Cabana, & Yelin, 2009, p. 577).

The National Asthma Educator Certification Board (NAECB) has certified over 3,543 AE-C’s since its inception in 2002 (National Asthma Educator Certification Board, 2016). Typically, respiratory therapists and nurses earn the AE-C credential, however, other licensed and credentialed healthcare providers are eligible to earn the AE-C as well. The primary goals of the NAECB are, “to promote optimal asthma management through the asthma educator certification process” (Cataletto, 2011, p. 52). While access to AE-C’s may be reduced, the importance of positioning AE-C’s where there is the greatest need within primary care and inpatient facilities provide AE-C’s more opportunities to offer evidenced-based asthma education to patients.

In the United Kingdom, Canada, New Zealand, and the United States, there are several training programs specifically for asthma educators. Cicutto, Burns, and Brown (2005) conducted a study to assess performance of training programs for certified asthma educators. According to Cicutto et. al (2005), “little attention has focused on the role of asthma educators in

the provision and success of asthma education” (Cicutto et al., 2005, p. 561). Participants of the study completed a questionnaire that collected demographic, practice, and learner characteristics. The criteria used to determine the level of success included an asthma knowledge score, an educational theory score, and a practice teaching skill score. Seventy-three participants enrolled represented a broad range of health professions including, respiratory therapists, nurses, pharmacists, and physiotherapists. The results of the study found a wide variety of respondents from various disciplines who provided asthma education. Cicutto et al. (2005) concluded that, “asthma educator training programs should be consistent with assessing both written knowledge and practice assessments in order to evaluate participants” (Cicutto et al., 2005, p. 561).

A randomized-controlled study by Field, Conley, Thawer, and Leigh (2009) studied whether the assessment and management of patients with chronic cough by certified respiratory educators (CRE) in Canada, was as effective as a pulmonologist. CRE’s in Canada are the equivalent to AE-C’s in the United States. CRE’s are credentialed practitioners that provide asthma education through evidenced-based practice (Canadian Network for Respiratory Care [CNRC], 2016). During the 8-week trial, the management of chronic cough patients was conducted. One-hundred and ninety-eight participants were enrolled in the study. The CRE’s averaged 4.9 contacts per patient compared with 2.7 by pulmonologists, and more patients showed improvement with a CRE than a pulmonologist (Field, Conley, Thawer, & Leigh, 2009). The researchers concluded that, CRE’s can efficiently and successfully evaluate, as well as appropriately treat, and screen patients with chronic cough for a subsequent decrease in wait times (Field et al., 2009). Thus, this study reaffirms advanced credentialing as a means to promote standards of care and practices that are evidenced based.



## **Pediatric Asthma in the Emergency Department**

Asthma exacerbations are a major cause of frequent Emergency Department (ED) visits by pediatric patients (Al-Muhsen, Horanieh, Dulgom, & Al Aseri, 2015). In a cross-sectional study identifying risk factors associated with ED visits by asthmatic children, Al-Muhsen et al., recruited 297 patients between the ages of 1-17 years old between 2 pediatric hospitals in Saudi Arabia (Al-Muhsen et al., 2015). Results of the study showed that 60.3% of patients had inadequately controlled asthma, and 56.4% of patients did not receive education about asthma. Misconceptions of the ED from families included thoughts on more effective treatment within the ED (40.9%), and the ED staff is more qualified (27.8%) to provide effective therapy. The results proved that half of the patients (48.2%) visited the ED because of the “convenience of being open 24 hours” (Al-Muhsen et al., 2015, p. 126). The study concludes that, “unnecessary and frequent visits to the ED for asthma care was associated with poor education about asthma and medication use” (Al-Muhsen et al., 2015, p. 126). The authors suggest that, patients and their families need effective asthma education including medication utilization and compliance (Al-Muhsen et al., 2015).

Camp, Norton, Goldman, and Shajari (2014) conducted a prospective study in ED visits for children with acute asthma. They explored the extent in which parents of children with asthma implement the recommendations provided by the ED staff at discharge. A total of 148 children with asthma were recruited. Eighty percent of parents acknowledged upper respiratory tract infections as the primary trigger for their child’s asthma. No parent received information on reducing the impact of upper respiratory tract infections. Eighty-two percent of parents did not receive asthma education materials, and 66% percent received verbal instructions on asthma management only (Camp, Norton, Goldman, & Shajari, 2014). The study concluded that at 6

months, parents continued to utilize the ED for their child's asthma exacerbations despite reporting a "feeling of confidence" in managing their child's asthma (Camp et al., 2014, p. 476). Interpreting these results, Camp et al. (2014) strongly suggest that "improvements are urgently needed in developing strategies to manage pediatric asthma exacerbation...communication with parents at discharge...[and] using alternate acute care services for parents who continue to rely on ED's for the initial care of mild asthma exacerbations" (Camp et al., 2014, p. 476), which contributes to the overall importance of asthma education in pediatric patients.

Fleming, Kuzik, and Chen (2011) conducted a study on a hospital-based inter-professional strategy to reduce in-patient admissions and emergency department visits for pediatric asthma. A Primary Care Asthma Program (PCAP) was modeled within a Pediatric Asthma Clinic (PAC) that utilizes an inter-professional approach to healthcare. Since its inception in 2006, patients enrolled in PCAP is associated with an average 67% decrease in ED visits secondary to asthma within the first year following enrollment (Fleming, Kuzik, & Chen, 2011). Fleming et al. (2011) conclude that, "through an inter-professional collaboration model of care in which best practices are employed, ED visits and in-patient admissions for pediatric asthma-related illness decrease" (Fleming et al., 2011, p. 51). Furthermore, improving inter-professional collaboration will increase overall knowledge and management of children with asthma for not only the providers but also for the caregivers.

### **Advocacy for Children with Asthma**

Krieger, Song, Takaro, and Stout (2000) discuss the implications of pediatric asthma within low-income urban communities and how childhood asthma has become a growing public health concern. In their study, Krieger et al. (2000) researched indoor living conditions related to asthma triggers, caregiver awareness, and resources related to control in a low-income

community in Seattle/King County, Washington. Data was “collected by in-person interviews of caretakers of children aged 4-12 years with persistent asthma living in households with incomes less than 200% of poverty...children and caregivers are participants in the ongoing Seattle-King County Healthy Homes Project...[and] is an intervention to empower low-income families to reduce exposure to indoor asthma triggers” (Krieger et al., 2000, p. 51). One-hundred and twelve participants were enrolled in the study and results were significant in that 37.5% of homes had a smoker present, mold was present in 26.8% of homes, water damage in 18.6% of homes, and 64.8% of homes had damp conditions (Krieger et al., 2000). Among their findings, 76.8% of children’s bedrooms had carpeting, and cockroach infestation within the past 3 months was conveyed by 23.4% of caregivers (Krieger et al., 2000). A surprising 57.1% of caregivers were “unaware of the association of roaches and asthma” (Krieger et. al, 2000, p. 54). Overall, the study suggests that “substandard housing and lack of resources often underlie these exposures” and that “initiatives involving health educators, outreach workers, medical providers, healthcare insurer, housing agencies, and elected officials are needed to reduce these exposures” (Krieger et. al, 2000, p. 65). Therefore, standards and initiatives must be improved within urban communities to improve living conditions for children with asthma.

Woods, Bhaumik, Sommer, Siniel, and Kessler (2012) assessed the cost efficiency of a quality improvement program in decreasing the pediatric asthma ED visits, hospitalizations, limits of physical activity, missed school, and missed work. Within their study, 283 low-income pediatric patients with asthma were identified and given enriched care including a nurse case manager and home visits (Woods, Bhaumik, Sommer, Siniel, & Kessler, 2012). The overall findings over a 12-month period indicated a decline in asthma ED visits (68%), hospitalizations (84.8%), limits of physical activity (42.6%), missed school (41%), and missed work (49.7%)

(Woods et al., 2012). The researchers concluded that the “program showed improved health outcomes and cost-effectiveness and generated information to guide advocacy efforts to finance comprehensive asthma care” (Woods et al., 2012, p. 465-66). Furthermore, this study proves that providing in-home visits as well as a nursing case manager to provide asthma care will assist in decreased asthma ED visits for children.

In another study designed to improve pediatric asthma outcomes within an urban setting, Sweet, Polivka, Chaudry, and Bouton (2013), designed a pre-and-post evaluation of household learning from a health educator as well as physical home interventions. One-hundred and fifteen participants were evaluated based on “asthma outcomes, caregiver quality of life, trigger-related activities, and asthma management at baseline and 6 months” (Sweet, Polivka, Chaudry, & Bouton, 2013, p. 243). The inclusive outcomes of the study revealed a reduction in days with asthma symptoms, decreased nocturnal arousals, decreased activity limitations, and a decreased use of rescue medications (Sweet et al., 2013). Researchers also discovered a decrease in “emergency department visits, missed school days, and caregiver missed work days...also caregiver quality of life improved” (Sweet et al. 2013, p. 243). Thus, home-based interventions showed a decline in asthma triggers and enhanced asthma outcomes in children. The interventions also had an improved quality of life for not only the children, but also their parents, guardians, and/or caregivers (Sweet et al., 2013). Therefore, study findings reiterate that providing health education and a physical assessment of living conditions for children with asthma will significantly reduce ED admissions and hospitalizations for children with asthma.

### **Respiratory Therapy**

The treatment of asthma and the profession of respiratory therapy are greatly inter-related. Respiratory Therapists (RTs) treat patients with both acute and chronic breathing

problems across the entire age spectrum. Asthma, if not controlled, is a chronic obstructive lung condition. RTs provide evidence-based practice for the treatment of asthma and education for self-management guidelines to patients every day. Their specialized training and comprehension of pathophysiology of chronic asthma is beneficial to patients. RTs have specific knowledge of how to achieve and maintain asthma control, decrease environmental triggers in order to prevent asthma exacerbations, and a unique understanding of different types of medications as well as therapies used to reduce asthma symptoms. Respiratory therapy driven protocols, under the direction of a physician, has become increasingly utilized within the hospital-care setting in order to manage patients with acute asthma exacerbations. Miller, Breslin, Pineda, and Fox (2015) conducted a study within the pediatric emergency department to determine importance of an evidenced-based asthma protocol as established by the National Institutes of Health (NIH) guidelines for patients presenting with asthma exacerbation. Two-hundred and sixty-one subjects were provided therapy with an asthma protocol. Primary outcomes measured included, “time to initial treatment with inhaled bronchodilator therapy, time to treatment with systemic corticosteroids, and total number of ipratropium bromide treatments delivered” (Miller et al., 2015, p. 1759). The study resulted in an “adherence to NIH guidelines in children with status asthmaticus and improved efficiency of administration of rescue bronchodilator and systemic corticosteroid therapy” (Miller et al., 2015, p. 1762). While this study does not directly state if RTs are initiating protocols for patients with asthma exacerbations, there are numerous institutions in which RTs have the autonomy to initiate protocols. Therefore, with their specific training and understanding of pathophysiology of asthma, RTs are well suited to become certified asthma educators. The importance of RTs within healthcare today is invaluable to the treatment of chronic asthma.

## **Conclusion**

Akinbami et al. (2012), discussed that over the past 30 years, the prevalence of childhood asthma has increased. Asthma is identified as a chronic pulmonary disease that effects the lower airways within the lungs. Cataletto (2011) describes that credibility increases with education and learning, thus, practitioners who obtain the AE-C credential uphold the aims of the NAECB, in order to advocate for optimal asthma management. Therefore, there is significance in obtaining an advanced credential to attain value, credibility, and opportunity. With an increase in asthma in children, a surge in ED visits has occurred exponentially. Studies show that improving inter-professional collaboration will increase overall knowledge, education, and management of children with asthma not only for healthcare providers but also for caregivers. Thus, RT driven protocols, under the direction of a physician, has become increasingly utilized within the hospital-care setting in order to manage patients with acute asthma exacerbations. With specific knowledge of asthma and the comprehension of pathophysiology of chronic asthma, RTs are invaluable in healthcare today. And, finally, advocacy for children with asthma must have standards and initiatives within urban communities in order to improve living conditions for children with asthma. Studies have shown a major link between reducing asthma exacerbations in children and improving standards of living in low-income communities.

## **CHAPTER III**

### **METHODOLOGY**

#### **INTRODUCTION**

This study explores the utilization, need of AE-C's, and gaps in asthma education within the HeLP clinic and at CHOA as it relates to the increased inpatient and outpatient visits for children with asthma at CHOA. The inherent significance includes increased validation for AE-C's and professional credibility. For this purpose, the study was directed via an online survey to answer the following research questions.

#### **Research Questions**

In this study, the following research questions will be explored.

1. What is the knowledge of asthma amongst pediatric medical residents, medical students, and law students who provide advocacy at the HeLP clinic?
2. What is the perception, utilization and/or the need of AE-C's within the HeLP clinic and at CHOA?
3. Based upon inpatient and outpatient asthma admissions at CHOA in 2015, are there any gaps in asthma education at CHOA where the standardization of asthma education practices and utilization of a certified asthma educator would be beneficial?

#### **Instrumentation**

A two-part survey was developed utilizing Schaffer and Yarandi's (2007) asthma self-management knowledge questionnaire, and Gardner, Brown, Marcus, and Rance's (2015) article in regards to national standards for asthma self-management education. The survey consisted of

two sections (Part A, Part B) distributed to medical residents and law students participating at the HeLP clinic.

Part A, AE-C, is designed using a five-point Likert Scale (1-strongly agree, 2-agree, 3-disagree, 4-strongly disagree, 5-no opinion) to describe the respondents' opinion of the perceived value of an AE-C (Appendix A). The instrument was reviewed and validated for face content. Part A, AE-C, consisted of 18 questions describing the perception of AE-C's. Perceptions of the utilization of AE-Cs questioned: specialized knowledge, clinical competence, practice standards, professional credibility, recognition from peers and other health professions, recognition from employers, increased consumer confidence, established personal confidence, enhances clinical abilities, provides personal satisfaction, professional challenge, enhances personal autonomy, indicates professional growth, provides evidence of professional commitment, provides evidence of accountability, increases marketability, and increases salary.

Part B, Asthma Knowledge, specifically utilizes the asthma self-management guidelines as established by the NAEPP (Schaffer et al., 2015). Content validity of the asthma management guidelines was, "assessed using a content validity index, whereby reviewers could rank each questions from 1 to 4...90% of items were judged valid to establish a content validity of .83 ( $p < .05$ )" (Schaffer et al., 2015, p. 531). The 24 true/false questionnaire was distributed and utilized within this study for assessing self-management knowledge within the HeLP and CHOA (Appendix A).

### **Participants and Survey Administration**

The GSU Institutional Review Board reviewed this study for the protection of the rights of human participants (Appendix B). CHOA Institutional Review Board reviewed this study and provided a Data Usage Agreement (Appendix C) for the utilization of un-identified patient data



relating to inpatient and outpatient asthma data for the year 2015. Following IRB approval, phase one of the project invited the HeLP law school and medical residents to complete a survey of their knowledge and skills in providing asthma self-management education (Appendix D). HeLP law students and pediatric medical residents were recruited for the study during an in-class discussion where the study was introduced in detail. Qualtrics<sup>TM</sup>, a research instrument to create surveys and evaluate results, was used to electronically distribute an online 42 question survey. Informed consent was obtained. Phase two of the study assessed the respondents use of AE-C's and their knowledge and understanding of the NAEPP guidelines for asthma self-management. This survey includes how well this target audience, broken into sub-sets by discipline, answered several questions regarding their knowledge of NAEPP asthma self-management guidelines, as well as the perception of AE-C's. Inclusion criterion for the study is GSU or Emory Law students, and Emory medical residents serving at the HeLP clinic in their first, second, or third year of study. Emory and GSU clinical faculty were excluded from the study. The survey remained opened for 4 weeks. Email reminders to HeLP law students and pediatric residents was delivered before the close of the study. Phase three of the study includes specific de-identified patient data obtained from CHOA. Data specifically explores inpatient and outpatient (ED) asthma admissions, number of asthma treatment protocols initiated, asthma education, number of asthma action plans, and the average clinical respiratory score of patients in acute asthma exacerbations that presented to CHOA in 2015. Phase four of the study includes specific data from HeLP (Appendix E). Data obtained from the HeLP includes, number of asthma-related referrals the HeLP received in 2015, the level of advocacy provided to families with children diagnosed with asthma, and the number of referrals for asthma that required further legal action.

## **Data Analysis**

Data were analyzed electronically with SPSS statistical software version 23 for descriptive statistics which included means, ranges, standard deviation, frequencies, and tests of significance. Respondents were confidential and only identified by IP address. AE-C data was coded in SPSS on an ordinal scale from 1-5. Asthma self-management guidelines, were coded as 1-true, and 2-false. Data cleaning techniques consisted on randomly selecting 5 surveys and double-checked for accuracy against raw data. Comparisons between level of knowledge and skills in providing asthma self-management education. Histograms were created to appreciate the effectiveness of AE-C's and those who obtain an AE-C credential.

Specifically, the survey consisted of two sections. The first section asked 18 questions to define the use and/or knowledge of the AE-C role as credentialed by the National Asthma Educator Certification Board on a 1-5 Likert Scale. The Likert Scale used 1= Strongly agree, 2 = Agree, 3 = Disagree, 4 = Strongly Disagree, and 5 = No opinion. The second section asked 24 true/false questions on the NAEPP asthma self-management guidelines and obtained answers regarding their knowledge of asthma self-management principles.

## **Conclusion**

This chapter specifically identifies the methodology used to conduct the study. Sample, instruments, and data analyses were explained in detail. The study includes four parts in which the first part is the perception and knowledge of AE-C's, the second part includes the knowledge of asthma using asthma self-management guidelines from the NAEPP, the third part contains data obtained from CHOA to explore inpatient and outpatient asthma acuity, education, and protocols, and lastly, data obtained from HeLP focused on asthma-related referrals in 2015 and the level of asthma advocacy provided to families with asthmatic children.

## CHAPTER IV

### RESULTS

#### INTRODUCTION

The results of the study are presented based on the order of the following research questions:

1. What is the knowledge of asthma amongst pediatric medical residents, medical students, and law students who provide advocacy at the HeLP clinic?
2. What is the perception, utilization and/or the need of AE-C's within the HeLP clinic and at CHOA?
3. Based upon inpatient and outpatient asthma admissions at CHOA in 2015, are there any gaps in asthma education at CHOA where the standardization of asthma education practices and utilization of a AE-C would be beneficial?

#### Demographics

Data was collected from participants of the HeLP utilizing Qualtrics™, a research tool used to create and distribute surveys. Nine surveys contained missing responses and were considered incomplete and discarded from the study. Descriptive statistics were conducted to describe the demographics of the sample. The total sample size was 31 HeLP clinic participants. Of the 31 responses, (16) 40% of the respondents identified themselves as law students, and (15) 37.5% were medical residents and medical students. The mean for the years of HeLP clinic experience reported was 1 year (SD .749). Twenty-seven of the respondents indicated that they had worked at the HeLP for at least 1 year (see Table 1).

Table 1. *Frequencies and Percentages for Sample Demographics*

Demographic	<i>n</i>	%
<b>Discipline</b>		
Law	16	51.6
Medicine	15	48.4
<b>Experience with HeLP</b>		
1 year	27	87.1
2 years	1	3.2
3 years	3	9.7

## FINDINGS

### Research Question One

*What is the knowledge of asthma amongst pediatric medical residents, medical students, and law students who provide advocacy at the HeLP clinic?*

To determine the knowledge of asthma among pediatric medical residents, medical students, and law students who provide advocacy at the HeLP clinic, a descriptive analysis was conducted based upon answers separated by discipline. This section specifically utilizes the asthma self-management guideline questions as established by the NAEPP (Schaffer et al. D2015). Discrepancies in answers between the law students and pediatric medical residents were identified and separated into three sub categories: General Knowledge of Asthma, Pharmacology/Asthma Control, and Asthma Advocacy.

***General Knowledge of Asthma:*** The general knowledge of asthma questions is focused on pathophysiology of asthma and implications of untreated asthma. Fifty-three percent of pediatric medical residents responded incorrectly when asked if asthmatics have swollen and inflamed airways even when they feel normal. Furthermore, sixty-seven percent of pediatric medical residents answered inaccurately when questioned if individuals with asthma need medicine if they feel normal. While there were no significant differences in answers between disciplines, there are gaps in asthma knowledge for pediatric medical residents and law students who provide asthma advocacy at the HeLP (see Table 2).

Table 2. *Frequencies for General Knowledge of Asthma in Rank Order*

<b>Question</b>	<i>N</i>	<i>%</i>
7. People with asthma should avoid exercise? (False)		
<b>Law students</b>		
True	1	6
False	15	94
<b>Pediatric residents</b>		
True	0	0
False	15	100
5. Untreated asthma can cause death? (True)		
<b>Law students</b>		
True	14	88
False	2	12
<b>Pediatric residents</b>		
True	15	100
False	0	0
9. People with asthma do not need medicine if they feel normal? (False)		
<b>Law students</b>		
True	2	13
False	14	88
<b>Pediatric residents</b>		
True	5	33
False	10	67
2. People with asthma have swollen and inflamed airways even when they feel normal? (True)		
<b>Law students</b>		
True	11	69
False	5	31
<b>Pediatric residents</b>		
True	7	47
False	8	53

***Pharmacology/Asthma Control:*** The pharmacology and asthma control questions focused on controller asthma medications and the utilization of specific medications that are essential in preventing asthma exacerbations and controlling asthma symptoms for individuals with asthma. Eighty-seven percent of law students answered correctly opposed to 80% of pediatric residents when asked if quick relief medication such as Ventolin, Proair, or other brand names of albuterol should always be taken every day. Moreover, 94% of law students as opposed to 73% of pediatric residents responded correctly when questioned concerning a 1 to 4-week improvement in breathing when initially using an inhaled steroid medication for asthma control. When discussing the mechanics of inhaler use, 81% of law students responded correctly contrasting to 53% of pediatric residents, when questioned about a 10-second breath hold after medication administration from an inhaler. Lastly, 87% of law students responded appropriately contrasting to 53% of pediatric residents when questioned concerning a one-minute interval between puffs of quick relief medication (see Table 3.)

Table 3. *Frequencies for Pharmacology and Asthma Control in Rank Order*

<b>Question</b>		<i>N</i>	<i>%</i>
11. You should wait until your symptoms are really bad before you use a quick relief medication such as Ventolin (albuterol)? (False)	<b>Law students</b>		
	True	4	25
	False	12	75
	<b>Pediatric residents</b>		
	True	0	0
	False	15	100
13. It is okay to take inhaled steroid medication only when you notice yourself wheezing? (False)	<b>Law students</b>		
	True	5	31
	False	11	69
	<b>Pediatric residents</b>		
	True	1	7
	False	14	93
10. Quick relief medication such as Ventolin, Proair or other brand names for albuterol should always be taken every day? (False)	<b>Law students</b>		
	True	2	13
	False	14	87
	<b>Pediatric residents</b>		
	True	3	20
	False	12	80
8.The purpose of steroid medication is to stop an asthma attack when it occurs? (False)	<b>Law students</b>		
	True	5	31
	False	11	69
	<b>Pediatric residents</b>		
	True	3	20
	False	12	80
12. It may take 1 to 4 weeks to notice improvement in your breathing when you start using an inhaled steroid medication? (True)	<b>Law students</b>		
	True	15	94
	False	1	6
	<b>Pediatric residents</b>		
	True	11	73
	False	4	27



Table 3. *Frequencies for Pharmacology and Asthma Control in Rank Order*

<i>Question</i>	<i>N</i>	<i>%</i>
16. You should wait about one minute between puffs of Your quick relief medication (Ventolin/albuterol)? (True)		
<b>Law students</b>		
True	14	87
False	2	13
<b>Pediatric residents</b>		
True	8	53
False	7	47
15. You should hold your breath for 10 seconds after each Puff of your inhaler? (True)		
<b>Law students</b>		
True	13	81
False	3	19
<b>Pediatric residents</b>		
True	8	53
False	7	47
23. Steroid inhalers will relieve an asthma attack within 20 minutes?		
<b>Law students</b>		
True	8	50
False	8	50
<b>Pediatric residents</b>		
True	6	40
False	9	60

***Asthma Advocacy and Triggers:*** In terms of asthma advocacy, law students and pediatric residents, responded to questions based on specifically known asthma triggers that potentially cause asthma exacerbations. When questioned if second-hand cigarette smoke triggers asthma symptoms, 100% of law students answered correctly opposed to 87% of pediatric residents who answered that cigarette smoke does not bother asthma symptoms. Moreover, 100% of law students agreed that bedrooms free of dust and animal fur or feathers is the most important room to keep clean, as opposed to 93% of pediatric residents who agreed. One-hundred percent of pediatric residents agreed that carpets that smell moldy can trigger an asthma attack, contrasting to 94% of law students. Lastly, 75% of law students opposite 60% of pediatric residents responded correctly according to covering pillows and mattresses with plastic covers to help avoid asthma triggers (see Table 4.)

Table 4. *Frequencies for Asthma Advocacy and Triggers in Rank Order*

Question		N	%
21. Carpets that smell moldy can trigger asthma? (True)			
	<b>Law students</b>		
	True	15	94
	False	1	6
	<b>Pediatric residents</b>		
	True	15	100
	False	0	0
18. Your bedroom is the most important room to Keep free of dust and animal fur or feathers? (True)			
	<b>Law students</b>		
	True	16	100
	False	0	0
	<b>Pediatric residents</b>		
	True	14	93
	False	1	7
17. It does not bother your asthma when people smoke Cigarettes around you? (False)			
	<b>Law students</b>		
	True	0	0
	False	16	100
	<b>Pediatric residents</b>		
	True	2	13
	False	13	87
18. Covering pillows and mattresses with plastic covers can help asthma?			
	<b>Law students</b>		
	True	12	75
	False	4	25
	<b>Pediatric residents</b>		
	True	9	60
	False	6	40

## Conclusion

Although there were no statistically significant differences between disciplines ( $p=0.008$ ), there are clinically significant differences noted in general knowledge of asthma,

pharmacology/asthma control, and asthma advocacy for law students and medical residents who provide legal aid at the HeLP. The importance of the findings in research question one is significant in that pediatric medical residents provide medical treatment to patients with asthma every day. With gaps in asthma knowledge, specifically in asthma triggers and pharmacology, pediatric medical residents may not be providing quality evidenced-based care to patients with asthma. The understanding of pharmacotherapy in the treatment of asthma is essential for pediatric medical residents as they primarily prescribe medications used to treat asthma symptoms.

## **Research Question Two**

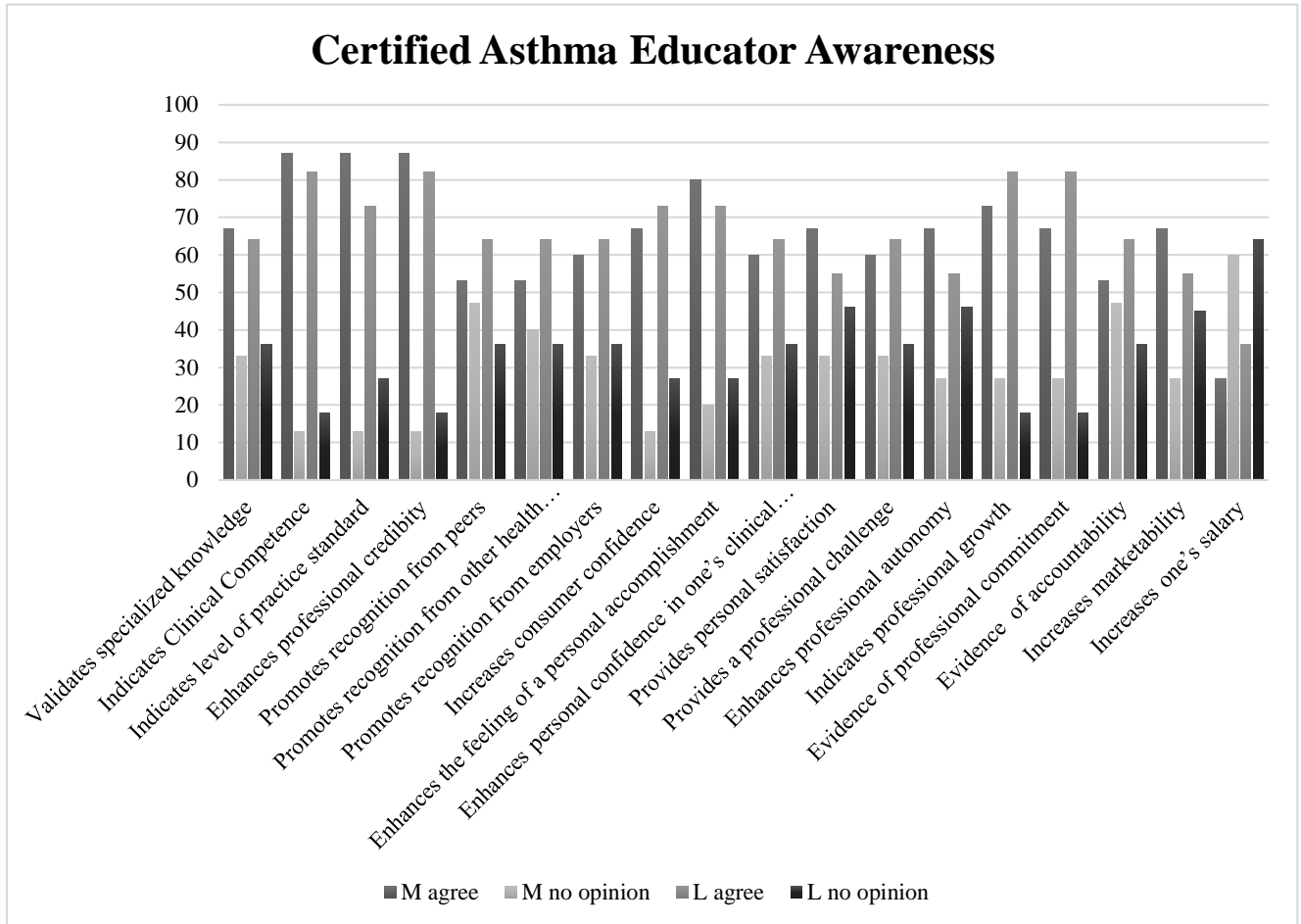
### ***What is the perception, utilization and/or the need of AE-C's within the HeLP clinic and at CHOA?***

To examine the perception, utilization and/or the need of AE-Cs within the HeLP clinic and at CHOA, law students and pediatric residents were asked a series of statements in regards to the awareness and use of AE-C's.

***Awareness of Certified Asthma Educators:*** In terms of knowledge and awareness of AE-Cs, pediatric residents and law students answered statements in regards to their perception of AE-Cs. Sixty-seven percent of pediatric residents and 64% of law students agree that obtaining an AE-C credential validates a specialized knowledge of asthma management. Eighty-seven percent of pediatric residents and 82% of law students agree that obtaining the AE-C credential verifies a level of clinical competence. Moreover, 87% of pediatric residents and 73% of law students agree that acquiring the AE-C credential indicates attainment of practice standards. Eighty-seven percent of pediatric residents and 82% of law students agree that attaining the AE-C credential enhances professional credibility. In terms of recognition from peers to those who attain the AE-C credential, 53% of pediatric residents and 64% of law students agree that the AE-C is recognized in a higher regard than those who do not have the credential. While recognition from peers serves its importance, 53% of pediatric residents and 64% of law students agree that attaining the AE-C credential promotes recognition from other health professionals. Also, 60% of pediatric residents and 64% of law students agree that those who attain the AE-C credential are recognized by employers. When questioned if an AE-C increases consumer confidence, surprisingly, 73% of law students as opposed to 67% of pediatric residents agreed. Eighty percent of pediatric residents and 73% of law students agree that attaining the AE-C credential

enhances one's feeling of personal accomplishment. Sixty percent of pediatric residents and 64% of law students agree that attaining the AE-C credential enhances one's clinical abilities. Also, 67% of pediatric residents and 55% of law students agree that an AE-C credential provides a level of personal satisfaction. According to 60% of pediatric residents and 64% law students, those with an AE-C credential are provided with a professional challenge. In terms of professional autonomy, 67% of pediatric residents and 55% of law students agree that those who have the AE-C credential practice with more autonomy. Furthermore, 82% of law students as opposed to 73% of pediatric residents agree that the AE-C credential indicates professional growth. Sixty-seven percent of pediatric residents and 82% of law students are in agreement that those who achieve the AE-C credential are proving a level of professional commitment. Also, 53% of pediatric residents and 65% of law students agree that those who attain the AE-C credential show accountability within their profession. To 67% of pediatric residents and 55% of law students, those with an AE-C credential are increasing their marketability within their profession. Lastly, 22% of pediatric residents and 36% of law students agree that the AE-C credential increases the salary of those who have attained the credential. Overall, the perceptions of those who have attained the AE-C credential are positive. Medical residents and law students agree that they would utilize an AE-C within the HeLP clinic if one were available. (See table 5)

Table 5. Awareness of Certified Asthma Educators



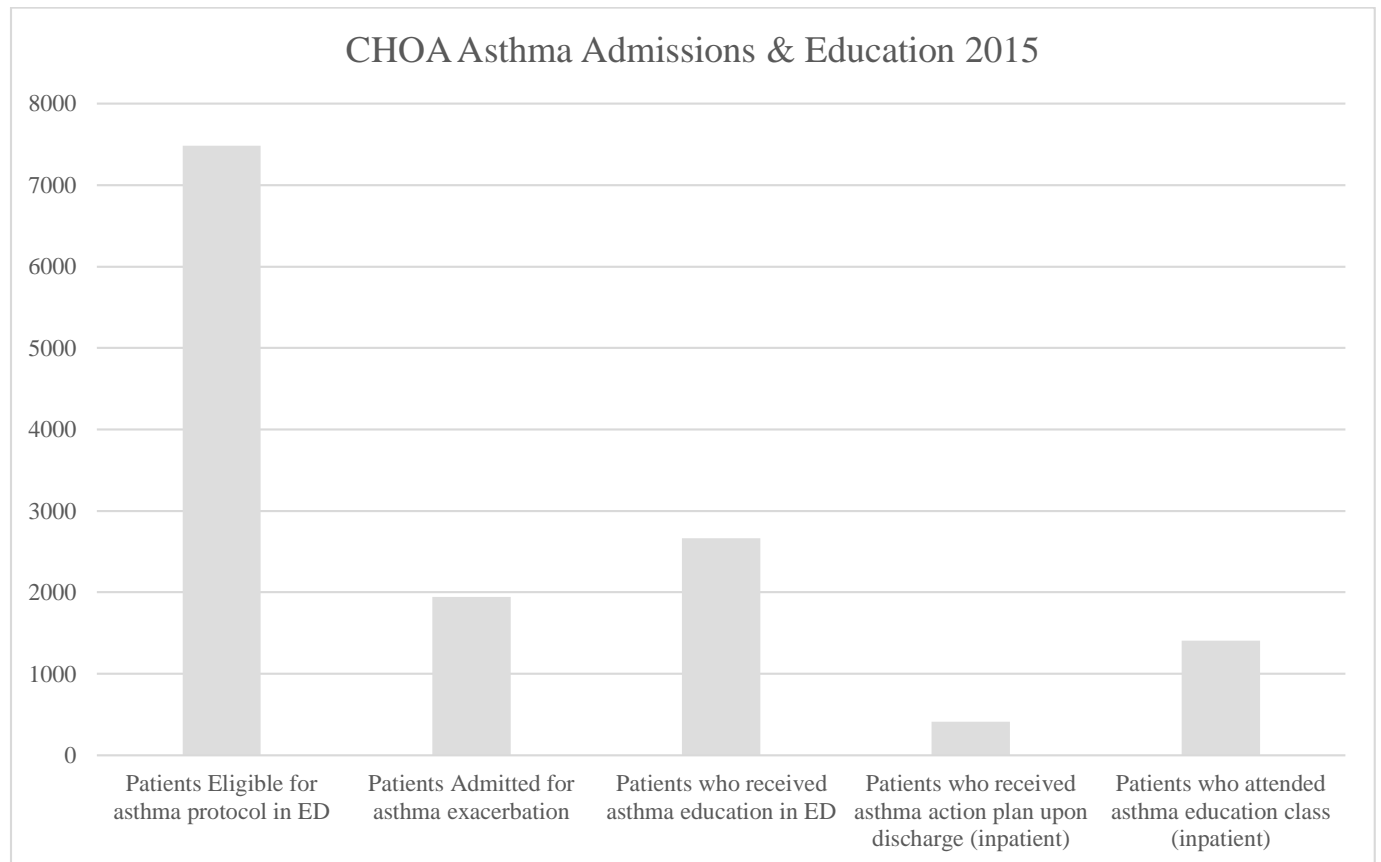
### Research Question Three

*Based upon inpatient and outpatient asthma admissions at CHOA in 2015, are there any gaps in asthma education at CHOA where the standardization of asthma education practices and utilization of a AE-C would be beneficial?*

To examine practices of asthma education at CHOA, de-identified patient data revealed that 7,482 patients presented to the Emergency Department (ED) with asthma symptoms and were eligible to be followed by asthma protocol. Of the 7,482 patients presenting with asthma symptoms, 42.9% had an “initiate asthma protocol” order written by a health care provider

(HCP). However, of the 7,482 patients presenting to the ED with asthma symptoms, only 2,667, or 36% of patients received asthma education in the ED upon discharge. Asthma education within the Emergency Department is presented by means of a 20-minute asthma video that plays over closed-circuit television within the patient room. One thousand nine hundred and forty-four patients with a primary diagnosis of asthma exacerbation were admitted to the inpatient unit. One thousand four hundred and five patients received asthma education classes within the inpatient unit, however, it is unknown whether an AE-C or other provider provided asthma education. Finally, only 411 patients of the 1,944 patients admitted, 22% received an asthma action plan upon discharge from the hospital. Patients receiving asthma action plans are provided control and rescue actions that are required for control and relief of asthma symptoms (see Table 6).

Table 6. *Children’s Healthcare of Atlanta Asthma Admissions & Education in 2015*





## CONCLUSION

The purpose of this study aimed to define the educational gaps within CHOA in relation to the number of inpatient and outpatient admissions for patients with the primary diagnosis of asthma. The evaluation and utilization of AE-C's within the HeLP clinic and CHOA is necessary in order to provide asthma education by means of evidence-based practice. The majority of respondents (67%) provided advocacy at the HeLP for less than or equal to one year. While there were no significant differences ( $p=0.008$ ) in answers between disciplines, there are gaps noted in general asthma knowledge, pharmacology & asthma control, and asthma advocacy & triggers. The majority of answers provided by law students and pediatric residents supported the use of an AE-C. Both disciplines agreed that AE-Cs indicate levels of increased clinical competence, practice standards, professional credibility, professional growth, and personal accomplishment. At CHOA, there were significant gaps in asthma education where AE-C utilization is not known. Additionally, within the ED, asthma education is deficient as over 7,482 patients presenting to the ED with asthma symptoms, because 2,667 patients, or 36% received asthma education upon discharge.

## CHAPTER V

### DISCUSSION

#### INTRODUCTION

This study examined the assessment of asthma knowledge, the perception and utilization of certified asthma educators between law students and pediatric medical residents who provide advocacy for children with asthma at the HeLP clinic. This chapter will discuss the findings to include an overview of the study, implications for research, recommendations for future research, limitations of the study, and conclusion.

#### **Knowledge of asthma**

The first research question “*what is the knowledge of asthma amongst residents, medical students, and law students who provide advocacy at the HeLP clinic?*”

Discrepancies in answers between the law students and pediatric medical residents were identified and divided into three sub categories: General Knowledge of Asthma, Pharmacology/Asthma Control, and Asthma Advocacy.

In terms of general knowledge of asthma, there were no significant differences in responses between disciplines, however, there are clinically significant differences in asthma knowledge for pediatric residents and law students who provide asthma advocacy at the HeLP clinic. While no known studies have compared the knowledge of asthma between pediatric residents and law students, studies have shown a decline in ED visits secondary to asthma education and medication compliance. As revealed in the literature review, Fleming et al. (2013), conducted a study on improving inter-professional collaboration to increase overall knowledge and management of children with asthma for not only the providers but also for the caregivers (Fleming et al., 2013). Therefore, improving inter-professional collaboration between

pediatric residents and law students within the HeLP clinic will, overall, improve the advocacy they provide to clients referred to the clinic.

Pharmacology and asthma control questions focused on asthma control medications and the use of specific medications that are essential in preventing asthma exacerbations and controlling asthma symptoms. As mentioned in the literature review, the primary treatment of asthma focuses predominately on “pharmacotherapy...long-acting beta agonists and inhaled corticosteroids are the main medication categories used for asthmatics” (Alotaibi, 2015). The inherent importance of comprehension of pharmacotherapy in the treatment of asthma for physicians is of utmost importance as they primarily prescribe medications to control and alleviate asthma exacerbations. While there were no significant differences in answers overall between the two disciplines, law students answered more questions correctly in regards to pharmacology and asthma control.

Studies on asthma advocacy discuss that standards and initiatives must be improved within urban communities to improve living conditions for children with asthma. Law students and pediatric residents, responded to questions based on specific known asthma triggers that potentially cause asthma exacerbations. The literature review shows a major link between reducing asthma exacerbations in children and improving standards of living in low-income communities. The importance of the study findings show that law students answered more correctly in regards to asthma advocacy than pediatric residents. While law students, in this case, provide more legal advocacy for children with asthma, pediatric residents have more interactions with patients with asthma than the law students. At times, the residents provide education to patients for avoidance of asthma triggers. Concluding, the inherent importance of asthma

education within the HeLP clinic proves to be of significance as the HeLP clinic continues to provide advocacy for children with asthma.

### **Perception, Utilization, and Need of AE-C's**

The second research question, “*what is the perception, utilization and/or need of AE-C's within the HeLP clinic and at CHOA?*” The results showed that 87% of pediatric residents and 82% of law students agree that obtaining the AE-C credential verifies a level of clinical competence. Moreover, 87% of pediatric residents and 73% of law students agree that acquiring the AE-C credential indicates attainment of practice standards for asthma management. As discussed in the literature review, individuals who obtained the AE-C credential uphold the aims of the NAECB, in order to advocate for optimal asthma management (Cataletto, 2011). The perceptions of an AE-C by pediatric residents and law students is, overall, positive. Currently within the HeLP clinic, there is not an AE-C available to provide evidenced-based asthma education, and therefore, an AE-C is recommended. In 2015, the HeLP clinic provided advocacy to 112 cases of children with asthma, and of these, 84 cases required legal aid, while 24 involved extended legal aid including negotiated settlements with and without litigation, and 1 case was transferred to the Atlanta Legal Aid society for advanced legal services (S. Caley, personal communication, September 30, 2016). Overall, 60% of pediatric residents and law students agree that they would utilize an AE-C if available within the HeLP clinic, thus affirming the significance of obtaining an advanced credential in order to attain value, credibility and opportunity. At CHOA, there are a limited number of credentialed AE-C's, and it is unknown whether an AE-C or other providers provided asthma education to patients within the inpatient or outpatient units. Within the 2 CHOA campuses in this study, there are only 2 AE-Cs available to provide asthma education, and, therefore it is unknown whether an AE-C or other healthcare

providers provided asthma education to patients within the inpatient or outpatient units. As shown in CHOA data, there are many ED visits for children with asthma and inpatient admissions for asthma exacerbations, and thus, there is a need for evidenced-based asthma education for not only the patients, but also for the caregivers. Therefore, AE-C providers are needed within the HeLP and CHOA to provide quality evidenced-based asthma education to patients and families.

### **Gaps in Asthma Education at CHOA**

The third research question, *“based upon inpatient and outpatient asthma admissions at CHOA in 2015, are there any gaps in asthma education at CHOA where the standardization of asthma education practices and utilization of an AE-C would be beneficial?”* De-identified patient data from CHOA revealed that 7,482 patients presented to the ED with asthma symptoms and were eligible to be followed by asthma protocol. However, only 42.9% of patients had an “initiate asthma protocol” order written by a HCP. Moreover, only 36% of patients presenting to the ED had asthma education upon discharge. This finding supports previous published studies by Camp et al. (2014) and Al-Muhsen et al. (2015) on managing pediatric asthma exacerbations by providing education for parents and/or caregivers at discharge in order to prevent asthma symptoms and recurring ED visits. Within the inpatient unit at CHOA, 1,994 patients were admitted with a primary diagnosis of asthma. One thousand four hundred and five, or 73% of patients received inpatient asthma education classes. While the curriculum of asthma education classes is standard across 2 campuses at CHOA, it is unknown whether an AE-C or other provider provided this or any other asthma education to families and caregivers. And, finally, 22% of admitted patients received an asthma action plan upon discharge from the hospital. As recommended for all asthmatic patients, asthma action plans provide a step-by-step management

plan to guide patients and families and/or caregivers on managing and relieving asthma symptoms. Therefore, there are process gaps noted within CHOA that are of significance. It is unknown if newly diagnosed asthma patients are being tracked within the system, and therefore they may not receive the care and follow-up needed to ensure overall effective asthma treatment either by a primary care physician or pulmonologist. Also, asthma education classes provided within the inpatient unit for patients, families, and caregivers may not be up-to-date with current asthma treatment guidelines, and therefore, the classes need to be reviewed and validated for current guidelines. Gaps within the outpatient areas at CHOA are significant. Less than half of the patients presenting to the ED with asthma symptoms were not treated with the asthma protocol as established by the CHOA system. Therefore, some patients were not treated according to current asthma protocol guidelines, and may not have received the care or education needed in order to prevent an asthma exacerbation. The gaps in asthma education within the ED are significant as only 36% of patients received education at discharge. Furthermore, the need for asthma education is essential in the ED in order to prevent re-admissions to the hospital.

### **Implications**

The inherent value and awareness of AE-C credentialed providers is shown throughout this research study as they uphold the aims of the NAECB to provide evidenced-based asthma education patients, families, and caregivers. Therefore, the recommendation for AE-Cs within the HeLP and CHOA is strongly suggested.

### **Recommendations for Future Research**

Further research is recommended. Replication of this study is recommended in order to generalize the findings of this study with a larger sample size. In addition, more research is recommended in order to assess the inter-professional collaboration between physicians and

lawyers who provide legal advocacy. More research is recommended to validate the need for AE-Cs within the hospital and additional settings.

### **Limitations of the Study**

As the sample is drawn from members within the HeLP, these findings are not generalizable to the broader field of those who provide advocacy within a medical-legal collaboration. Had the survey been distributed to all medical-legal asthma advocacy groups, the results would be broader and possibly generalizable. Another limitation of the study is the sample size. 31 respondents from the HeLP clinic completed the survey, however, 9 did not complete the survey for unknown reasons. Since the survey was emailed to the participants, it is limited by the ability of the participants to check their email. Moreover, there was a possibility that the survey was sent to junk mail box and therefore the response rate might have been affected. Also, the study was conducted for only 1 cohort group practicing at the HeLP. If the study was conducted with a different cohort, possibly the results could have been different. Also, this study included a pediatric population only, and therefore, an adult population was not studied. There were no significant differences in outcomes of this study, however, this study may be clinically significant despite the small sample size. This study is unique to setting and situation, and can, therefore be replicated to other unique situations and settings.

### **Conclusion**

There are no published studies that have specifically surveyed pediatric residents and law students about the knowledge of asthma, the perception and value of AE-C's, and the utilization and need of AE-C's. Notably, AE-C's provide a standard for evidenced-based asthma education. This study affirms the significance of obtaining an advanced credential in order to attain value, credibility and opportunity. The perception of the AE-C credential amongst pediatric residents

and law students affirmed the inherent value of an AE-C in every day practice. The findings of this study increase the awareness of the gaps in asthma education at CHOA and also provided insight into the need for not only providing standards for asthma education but also to improve inter-professional collaboration for those who provide legal advocacy for children with this incurable, yet manageable pulmonary disease.



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## **Appendix A: Survey Part A, AE-C, & Part B, Asthma Knowledge**

Dear HeLP Clinic Member:

I am writing to request your participation in a research study. The specific aim is to address the specifications needed for effective asthma education which may or may not include the use of asthma educators who have earned the credential AE-C®. You are invited to participate because you are a law student or a pediatric medical resident participating in the HeLP Legal Services Clinic. A total of 30 participants will be recruited for this study. Participation will require about 15 minutes of your time during this semester.

If you decide to participate, you will complete an online survey asking about your level of knowledge needed for self-management of asthma. You will also be asked about your opinion on the use of a certified asthma educator. This survey will need to be completed one time only.

You will receive no direct benefit for volunteering to participate in this study. Overall, we hope to gain information about that may be beneficial in discerning the specific knowledge needed for patients to be able to control and manage their asthma condition. It will also provide information regarding your opinion on the use of a certified asthma educator. This survey will not require you to interact with other participants.

Your participation in this study is absolutely voluntary and you can refuse to participate or stop taking the survey at any time without penalty or loss of benefits to which you are otherwise entitled. Your response will be used for research purposes and will be strictly confidential. Should you decide to participate you will be asked to complete the following survey, which should take approximately 15 minutes or less to complete. Please be aware that the data sent over the Internet may not be secure. In order to protect your confidentiality, no names, IP addresses or codes will be used to identify you. Surveys will be destroyed after all surveys have been collected.

Dr. Lynda Goodfellow will have access to the information you provide. Information may also be shared with those who make sure this study is done correctly (GSU Institutional Review Board, the Office for Human Research Protection (OHRP), and/or the National Asthma Education Certification Board). The information you provide will be stored on a password and firewall protected computer. Your name and other facts that might point to you will not appear when we present this study or publish its results. The findings will be summarized and reported in group form. You will not be identified personally.

Contact Dr. Lynda Goodfellow at [LTGoodfellow@gsu.edu](mailto:LTGoodfellow@gsu.edu) or 404.413.1223 if you have questions, concerns, or complaints about this study. You can also call if you think you have been harmed by the study. Call Susan Vogtner in the Georgia State University Office of Research Integrity at 404.413.3513 or [svogtner1@gsu.edu](mailto:svogtner1@gsu.edu) if you want to talk to someone who is not part of the study team. You can talk about questions, concerns, offer input, obtain information, or

suggestions about the study. You can also call Susan Vogtner if you have questions or concerns about your rights in the study.

Your completion and submission of the survey indicates your consent to participate in this research. You may withdraw at any time by not completing or by submitting a blank survey.

The information from this research may be published in journals or presented at professional meetings. This research does not cost the participant in any way. There are no known risks associated with participation. We do not predict that this study will cause any harm or discomfort. However, should you be uncomfortable about completing the survey, simply submit a blank survey.

Thank you in advance for your cooperation. Your participation makes an important contribution to what is known about asthma management and control in our local area.

Sincerely,

Lynda Goodfellow, EdD

**Please note:** Completion and submission of this survey implies that you have read this information and consent to participate in the research. If you agree to participate in this research, please continue with the survey. You can print a copy of the form for your records.

- I Agree
- I Disagree

### **Part A**

The aim of this study is to address the specifications needed for effective asthma education which may or may not include the use of an asthma educator who has earned the AE-C credential.

The National Asthma Education Certification Board defines Certified Asthma Educators as one who promotes optimal asthma management and quality of life among individuals with asthma, their families and communities, by advancing excellence in asthma education. The questions below ask your opinion on the perceived value of asthma educator certification. Thank you for your participation.

**DIRECTIONS:** Please indicate the degree to which you agree or disagree with the statements by selecting strongly agree, agree, disagree, strongly disagree, or no opinion.

1. An AE-C validates specialized knowledge?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree

- e. No opinion
- 2. An AE-C indicates level of clinical competence?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
- 3. An AE-C indicates attainment of a practice standard?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
- 4. An AE-C enhances professional credibility?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
- 5. An AE-C promotes recognition from peers?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
- 6. An AE-C promotes recognition from other health professionals?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
- 7. An AE-C promotes recognition from employers?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
- 8. An AE-C increases consumer confidence?
  - a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
- 9. An AE-C enhances a feeling of personal accomplishment?
  - a. Strongly agree
  - b. Agree

- c. Disagree
  - d. Strongly disagree
  - e. No opinion
10. An AE-C enhances a personal confidence in clinical abilities?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
11. An AE-C provides personal satisfaction?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
12. An AE-C provides a professional challenge?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
13. An AE-C enhances professional autonomy?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
14. An AE-C indicates professional growth?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
15. An AE-C provides evidence of professional commitment?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
16. An AE-C provides evidence of accountability?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
17. An AE-C increases marketability?

- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion
18. An AE-C increases salary?
- a. Strongly agree
  - b. Agree
  - c. Disagree
  - d. Strongly disagree
  - e. No opinion

## **Part B**

The following questions ask about asthma self-management practices. Please select “true” for questions that are correct and “false” for questions that are not correct.

1. Frequent coughing can be a symptom of asthma?
  - a. True
  - b. False
2. People with asthma have swollen and inflamed airways even when they feel normal?
  - a. True
  - b. False
3. Asthma may cause wheezing when you exercise?
  - a. True
  - b. False
4. People with asthma can usually control their symptoms by taking medicine and avoiding things that make their asthma worse?
  - a. True
  - b. False
5. Untreated asthma can cause death?
  - a. True
  - b. False
6. Asthma can be completely cured?
  - a. True
  - b. False
7. People with asthma should avoid exercise?
  - a. True
  - b. False
8. The purpose of steroid medication inhalers is to stop an asthma attack when it occurs?
  - a. True
  - b. False
9. People with asthma do not need to take medicine if they feel normal?
  - a. True
  - b. False



10. Quick relief medication such as Ventolin, Proair or other brand names for albuterol should always be taken every day?
  - a. True
  - b. False
11. You should wait until your symptoms are really bad before you use a quick relief medication such as Ventolin (albuterol)?
  - a. True
  - b. False
12. It may take 1-4 weeks to notice improvement in your breathing when you start using inhaled steroid medication?
  - a. True
  - b. False
13. It is okay to take inhaled steroid medication only when you notice yourself wheezing?
  - a. True
  - b. False
14. To use an asthma inhaler correctly, you need to breathe in as you press down on the inhaler?
  - a. True
  - b. False
15. You should hold your breath for 10 seconds after each puff of your inhaler?
  - a. True
  - b. False
16. You should wait about one minute between puffs of your quick relief medication (Ventolin/albuterol)?
  - a. True
  - b. False
17. It does not bother your asthma when people smoke cigarettes around you?
  - a. True
  - b. False
18. Your bedroom is the most important room to keep free of dust and animal fur or feathers?
  - a. True
  - b. False
19. Getting rid of cockroaches in your house may help your asthma?
  - a. True
  - b. False
20. Keeping your bedroom windows open at night will help prevent asthma symptoms?
  - a. True
  - b. False
21. Carpets that smell moldy can trigger asthma?
  - a. True
  - b. False
22. Covering pillows and mattresses with plastic covers can help asthma?
  - a. True
  - b. False
23. Steroid inhalers will relieve an asthma attack within 20 minutes?
  - a. True

- b. False
- 24. Taking an antibiotic such as penicillin will help most bad asthma?
  - a. True
  - b. False

**Discipline:**

- Law
- Medicine

**Years of experience with HeLP:**

- One
- Two
- >Three

**Having a certified asthma educator available will lead you to seek out their services:**

- More
- Less
- Has no effect

**Are there any comments you want to add? Please comment below:**

## Appendix B: GSU IRB Letter

### INSTITUTIONAL REVIEW BOARD

Mail: P.O. Box 3999  
Atlanta, Georgia 30302-3999  
Phone: 404/413-3500  
Fax: 404/413-3504

In Person: Dahlberg Hall  
30 Courtland St, Suite 217



October 07, 2016

Principal Investigator: Lynda T Goodfellow

Key Personnel: Gardenhire, Douglas; Goodfellow, Lynda T; Miller, Laura S

Study Department: GSU - Respiratory Therapy

Study Title: Knowledge of Asthma and the Utilization of Certified Asthma Educators in a Health Law Partnership Legal Services Clinic and A Metropolitan Children's Hospital, A Needs Assessment

Submission Type: Exempt Protocol Category 4

IRB Number: H17135

Reference Number:

341072

Approval Date: 10/07/2016

Expiration Date: 10/06/2019

The above referenced study has been determined by the Institutional Review Board (IRB) to be exempt from federal regulations as defined in 45 CFR 46 and has been evaluated for the following:

1. determination that it falls within one of more of the six exempt categories allowed by the institution; and
2. determination that the research meets the organization's ethical standards

If there is a change to your study, you should notify the IRB through an Amendment Application before the change is implemented. The IRB will determine whether your research protocol continues to qualify for exemption or if a new submission of an expedited or full board application is required.

Exempt protocols must be renewed at the end of three years if the study is ongoing. When the study is complete, a Study Closure Form must be submitted to the IRB.

Any unanticipated/adverse events or problems resulting from this investigation must be reported immediately to the University Institutional Review Board. For more information, please visit our website at [www.gsu.edu/irb](http://www.gsu.edu/irb).

Sincerely,



Susan Vogtner, IRB Member

**Federal Wide Assurance Number: 00000129**

## Data Use Agreement

This Data Use Agreement ("Agreement") is made, entered into, and effective on the date last signed below (the "Effective Date") by and between Children's Healthcare of Atlanta, Inc. ("Children's"), a Georgia non-profit corporation with its Office of Sponsored Programs located at 1687 Tullie Circle, NE, Atlanta, Georgia, and The Board of Regents of the University System of Georgia by and on behalf of Georgia State University ("Recipient"), with offices at 1 Park Place South.

WHEREAS, Children's maintains certain patient data and wishes to provide Recipient with this data for the purposes of conducting a research project entitled "*Copy of An assessment of knowledge of asthma and the use of Certified Asthma Educators (AE\_C) in a Health Law Partnership Legal Services Clinic*", led by Principal Investigator Lynda Goodfellow (the "Research Project," attached hereto as Exhibit A); and

WHEREAS, Recipient wishes to receive certain de-identified data collected and maintained by Provider as described more particularly below, for the sole purpose described herein; and

WHEREAS, the purpose of this Agreement is to satisfy the obligations of the parties under HIPAA and the HITECH Act and to protect the integrity and confidentiality of certain information disclosed or made available to Recipient and certain information that Recipient uses, discloses, receives, transmits, maintains or creates, from Children's data.

NOW, THEREFORE, in consideration of the promises made herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

### **I. DEFINITIONS**

Terms used but not otherwise defined in this Agreement shall have the same meaning as those terms in HIPAA and the HITECH Act.

- a. De-Identified Data shall mean data that satisfied the de-identification requirements set forth in 45 CFR 164.514 of the Privacy Rule.
- b. Individual shall have the same meaning as the term "individual" in 45 CFR Sect. 164.501 of the HIPAA Privacy Rule and shall include a person who qualifies as a personal representative in accordance with 45 CFR 164.502(g) of the Privacy Rule.
- c. Limited Data Set shall have the same meaning as the term "limited data set" in 45 CFR 164.514(e) of the Privacy Rule. A limited data set is protected health information that excludes the following direct identifiers of the individual or of relatives, employers, or household members of the individual: names, postal address information (other than town or city, state, and zip code), telephone numbers, fax numbers, electronic mail

addresses, social security numbers, medical record numbers, health plan beneficiary numbers, account numbers, certificate/license numbers, vehicle identifiers and serial numbers (including license plate numbers), device identifiers and serial numbers, web universal resource locators (URLs), internet protocol (IP) address numbers, biometric identifiers (including finger and voice prints), full face photographic images, and any comparable images.

- d. Privacy Rule shall mean the Standards for Privacy of Individually Identifiable Information at 45 CFR Part 160 and Part 164, Subparts A and E, as amended from time to time.
- e. Protected Health Information or PHI shall have the same meaning as the term "protected health information" in 45 CFR 164.501 of the Privacy Rule, to the extent such information is created or received by Recipient from Children's.
- f. Required by Law shall have the same meaning as the term "required by law" in 45 CFR 164.501 of the Privacy Rule.

## II. SCOPE AND PURPOSE

- a. This Agreement sets forth the terms and conditions pursuant to which Children's will disclose the De-Identified Data to Recipient, as well as the purpose for which the De-Identified Data may be used and the restrictions pertaining to the Recipient's Use of the De-Identified Data.
- b. Children's agrees to provide Recipient the De-Identified Data designated in Section III.
- c. Recipient shall use or disclose the De-Identified Data only for the limited purposes necessary to conduct the Research Project. Children's represents that Recipient's request that Children's disclose certain De-Identified Data to Recipient is limited in scope to the minimum necessary information to accomplish Recipient's purpose in connection with the Research Project.
- d. In addition to the Recipient, the individuals, or classes of individuals, who are permitted to use or receive the De-Identified Data for purposes of the Research Project include: Lynda Goodfellow.

## III. DE-IDENTIFIED DATA

For purposes of this Agreement, Children's will provide the following De-Identified Data to Recipient, as set forth in the Research Project:

- A. Number of ED admissions related the asthma at Egleston and Scottish Rite during 2015.

- B. Number of asthma protocols/asthma guidelines used in ED at Egleston and Scottish Rite during 2015.
- C. Number of patients receiving asthma education in the ED at Egleston and Scottish Rite during 2015.
- D. Number of asthma action plans provided (inpatient) at Egleston and Scottish Rite during 2015.
- E. Number of patients receiving asthma education (inpatient) at Egleston and Scottish Rite during 2015.
- F. Average clinical respiratory score of asthma patients

#### IV. DATA RECIPIENT'S OBLIGATIONS

- a. Recipient shall use or disclose the De-Identified Data only for the sole purpose of conducting the Research Project, unless otherwise required by law.
- b. Recipient shall use appropriate safeguards to prevent use or disclosure of the De-Identified Data other than as provided for by this Agreement.
- c. Recipient agrees that it shall obtain and maintain, for the term of this Agreement, a written agreement with each contractor or with any agent, including a subcontractor, to whom it provides any portion of the De-Identified Data holding them to the same restrictions and conditions that apply through this Agreement to the Recipient with respect to such information. Further, upon request, Recipient will provide copies of such agreements to Children's.
- d. Recipient shall provide written notice to Children's of any use or disclosure of the De-Identified Data not provided for by this Agreement of which Recipient becomes aware within five (5) days of its discovery.
  - i. [EA-1286791][DLF2]
- e. Recipient shall not identify or attempt to identify any individuals or families whose health information may be represented in the De-Identified Data. If such identification occurs inadvertently, Recipient shall immediately report this event to Children's. Recipient shall mitigate any harmful effect(s) known to Recipient as a result of such inadvertent identification. Recipient shall not contact any individual whose PHI is contained in the De-Identified Data.
- f. Recipient shall designate an individual as its custodian of the De-Identified Data on its behalf, who shall be personally responsible for the observance of all conditions for use and secure maintenance of the De-Identified Data. Recipient shall identify its custodian to Children's upon execution of this Agreement and shall notify Children's of any change of custodianship within ten (10) days of such change.

- g. Recipient agrees to notify Children's in writing within five (5) days of Recipient's receipt of any request or subpoena for any portion of the De-Identified Data or any information related to this Agreement. To the extent that Children's decides to assume responsibility for challenging the validity of such request, Recipient will cooperate fully with Children's in any such challenge

## V. TERM AND TERMINATION

- a. This Agreement shall be effective as of the Effective Date and shall terminate when all of the De-Identified Data provided by Children's to Recipient is destroyed or returned to Children's, or, if it is infeasible to return or destroy the De-Identified Data, protections are extended to such information, in accordance with the termination provisions in this Section.
- b. Upon Children's knowledge of a material breach by Recipient, Children's shall have the right to take any or all of the following actions:
  - i. Provide Recipient with written notice of the breach and an opportunity to cure the breach within ten (10) days of receipt of such notice. If Recipient fails to cure the breach within the notice period, Children's may immediately terminate this Agreement; or
  - ii. Immediately terminate this Agreement (without opportunity to cure) if Children's determines, in its sole discretion, that Recipient has breached a material term of this Agreement; or
  - iii. Children's may report the violation to the Secretary of the Department of Health and Human Services.

## VI. MISCELLANEOUS

- a. RECIPIENT ACKNOWLEDGES THAT INFORMATION CONTAINED IN THE DE-IDENTIFIED DATA IS PROVIDED ON AN "AS IS" BASIS WITH NO WARRANTY OR REPRESENTATION AS TO COMPLETENESS, ACCURACY, SAFETY, OR FITNESS FOR A PARTICULAR PURPOSE.
- b. Recipient shall cite Children's as a data source for all studies and other publications that use or rely on the De-Identified Data
- c. This Agreement supersedes all previous oral or written agreements, commitments or understandings, and constitutes the entire agreement between the parties with respect to the subject matter of this Agreement.
- d. The parties agree to amend this Agreement from time to time as necessary by mutual, written agreement to comply with all applicable federal and state requirements regarding privacy and confidentiality of the De-Identified Data.



- e. Any ambiguity in this Agreement shall be resolved to permit Children's to comply with all applicable federal and state requirements regarding privacy and confidentiality of the De-Identified Data.
- f. The waiver by either party of a breach or violation of any provision of this Agreement shall not operate as or be construed to be, a waiver of any subsequent breach of the same or any other provision hereof and shall not affect the right of either party to require performance at a later time.
- g. Neither party may assign this Agreement without prior written consent of the other party. This Agreement will be binding upon and will be for the benefit of the parties hereto and their respective successors and assigns.
- h. This Agreement shall be construed in accordance with and governed by the laws of the State of Georgia.

IN WITNESS WHEREOF, the parties have executed this Agreement effective upon date as listed below.

CHILDREN'S HEALTHCARE OF ATLANTA, INC.

By:  \_\_\_\_\_

Kristine Rogers

Interim VP, Rsrch Acad Admin.

GEORIGIA STATE UNIVERSITY

By: 

Printed Name:    Nancy P. Kropf   

Title:   Dean, Byrdine F. Lewis School of

Nursing and Health Professions   DATE: June 27, 2016

## Appendix D: Invitation to HeLP Clinic Participants



Dear HeLP Clinic member:

I am writing to request your participation in a research study. The aim of the study is to address the specifications needed for effective asthma education which may or may not include the use of asthma educators who have earned the credential AE-C®. Your experience related to asthma education will greatly assist in understanding the role of AE-Cs in asthma education.

If you agree to participate, you will complete an online survey that you may access directly by clicking on a link that will be sent to you by Professor Sylvia Caley on October 15th. You can expect to complete the survey within 15 minutes.

Your answers will be confidential. No personal identifiers will be used to ensure your confidentiality. Additionally, all gathered surveys will be deleted after the survey coding is completed.

In case you wish to receive a summary of the study results, or if you have any concerns or questions about the research, please contact Lynda Goodfellow at [LTGoodfellow@gsu.edu](mailto:LTGoodfellow@gsu.edu).



## Appendix E: Letter to Sylvia Caley at HeLP Clinic

Sylvia D. Caley, RN, MBA, JD  
College of Law  
Georgia State University  
Atlanta, GA

Dear Sylvia D. Caley, RN, MBA, JD:

My thesis, under the direction of Lynda Goodfellow, "Knowledge of Asthma and the Utilization of Certified Asthma Educators in a Health Law Partnership Legal Services Clinic and A Metropolitan Children's Hospital, A Needs Assessment" is reviewing the collaboration of medical residents and law students and their knowledge of asthma. I am presently requesting the following data to be provided from the Health Law Partnership Clinic, if available.

1. How many referrals did the HeLP receive for asthma-related cases in 2015?
2. What is the level of advocacy provided to families with children with asthma? For example, mold abatement, lack of education, asthma-related triggers within the home, access to healthcare, etc?
3. How many referrals for asthma needed advanced legal assistance in 2015? For example, legal representation in a court of law, legal documents to be filed, etc?

If you feel that you are able to provide me with this data and information from the HeLP clinic, please contact me by phone at 678.995.1878 or by email at [Ishippl@student.gsu.edu](mailto:Ishippl@student.gsu.edu).

Please accept my sincere thanks for your time and consideration of my request.

Sincerely,



Laura S. Miller