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Asthma Prevalence: Focus on Prevention Management in Community Settings

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ASTHMA PREVALENCE: FOCUS ON PREVENTION MANAGEMENT IN COMMUNITY SETTINGS

By

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DEDICATION

To my wife Theodora, this is dedicated to you for your support and encouragement. For Michael, Irvine and Zaida thanks for your patience during the process.

APPROVAL PAGE

Asthma Prevalence: Focus on Prevention Management in Community Settings

By

AUGUSTINE M. AMENYAH

Approved:

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Committee Member

12/06/11

ABSTRACT

AUGUSTINE M. AMENYAH

Asthma Prevalence: Focus on Prevention Management in Community Settings

Under the direction of Dr. RODNEY S. LYN.

Asthma prevalence continues to increase across the United States of America, affecting more than 43.1 million people and projected to affect over 50 million people by 2025. Asthma prevalence differs by demographic characteristics, such as race, ethnicity, socio-economic status, education, age and gender. Poor quality of life is common among people who suffer from asthma, in addition to school and work absenteeism. In 2008, children 5-17 years old with at least one reported asthma attack missed 10.5 million school days in the past year (CDC, 2010). Healthcare use for asthma is high and disparities remain in asthma healthcare use and reimbursement. In community settings, reimbursement for asthma education and prevention has been problematic due to current reimbursement mechanisms (Bodenheimer et al. (2003); Halterman (2010); CDC (2011) and Laster et al. 2010) that do not go far enough in assisting low-income communities manage their asthma medically nor have uniform standards for billable services associated with asthma management provided by both healthcare professionals and public health workers. A change in reimbursement policy is advocated and the evidence for the effectiveness of community health workers in asthma management is examined.

INDEX WORDS: asthma, prevention, management, reimbursement, community health workers, health policy, and community settings.

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Chapter 1

INTRODUCTION

1.1 Background

Asthma has become more prevalent nationwide in the last 20 years among all age, sex, and racial groups (Healthy People, 2010). Uncontrolled asthma has major impact on the lives of sufferers resulting in missed days of school for school children, missed work days resulting in lack of productivity, unplanned childcare, emergency room visits, sleep disorders and fatigue, physical limitations and depression. According to Georgia Department of Community Health (2001) a number of barriers to implementing successful public health asthma programs in Georgia includes: physician non-adherence to National Asthma Education and Prevention Program guidelines; perception of asthma as an acute disease instead of a chronic disease; patient non-adherence to asthma management plan; cost of asthma drugs; cultural issues; lack of insurance; low literacy level; data limitations; lack of coordinated, collaborative statewide plan, insufficient and inconsistent funding and inadequate number of staff (Georgia Department of Community Health, 2001). However, with proper trigger prevention education, people who suffer from this chronic condition can lead full active lives with little disruption to school, work, family and social activities (NAECB, 2003).

This introductory chapter provides background information on the definition of asthma and relevant information that highlights the health problems associated with asthma in the United States and Georgia, the factors that contribute to increased risk for asthma; the need for interventions, purpose statement and theoretical frame for this capstone project.

1.2 Defining Asthma

The National Heart, Lung, and Blood Institute (NHLBI, 2003) defines asthma as "…a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. In susceptible individuals, this inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment. The inflammation also causes an associated increase in the existing bronchial hyper responsiveness to a variety of stimuli" (NHLBI, 2003). Asthma is further classified as an allergic disease which is on the increase in incidence and prevalence despite recent advances in treatment and understanding of the causes and risk factors associated with its pathogenesis (IOM, 2000). Allergic diseases such as asthma affect up to 15% of populations in industrialized countries (Robinson *et al.* 2004). The increasing incidence and prevalence of asthma in many parts of the country continues to make it a top public health concern (NHLBI, 2004). Asthma affects both children and adults, however, in recent years there has been a spike in pediatric asthma. From 1980 to 1996, asthma prevalence among children increased by an average of 4.3% per year. As of 2002, 9 million U.S. children under 18 years of age (12%) had at some time in their lives been diagnosed with asthma. Of those, 4.2 million had experienced an asthma attack within the previous year (Dey *et al.* 2004). Asthma can be triggered and exacerbated by exposure to many environmental factors. According to the American Academy of Pediatrics, avoiding environmental allergens and irritants is one of the primary goals of good asthma management (AAPCEH, 2003).

1.3 Asthma in the United States

Healthy People (2010) identified asthma as a major public health burden in the U.S. Prevalence of asthma symptoms increased by 21% and asthma related healthcare utilization increased by 26% from 2000-2005 (Healthy People 2010). Though, asthma is a major public health issue among all segments of the population, it is more severe among minorities with low socio-economic conditions. About 11% of non-Hispanic Blacks of all ages and about 17% of non-Hispanics black children had asthma in 2009, the highest rate among racial/ethnic minorities (CDC, 2011). In 2006, asthma prevalence was 20.1% higher in African Americans than whites (American Lungs Association, 2007). The greatest rise in asthma rates was among black children (almost 50% increase) from 2001 through 2009. About 2 million Hispanics in the U.S have asthma (Akinbami, 2006). Approximately 43.1 million Americans have been diagnosed with asthma. Asthma prevalence in 2001-2003 was higher in those below the federal poverty line (10.3 %) compared with those at or above the federal poverty line (6.4%). Asthma is the leading cause of hospitalization among children under age 15 (DeFrances, Cullen, & Kozak, 2005). Asthma accounts for 1.6 million emergency department visits and 440,000 hospitalizations, 10.6 million doctor visits every year (CDC, 2010). Annual expenditures for health and lost productivity due to asthma are estimated at over $20 billion according the National Lungs and Blood Institute (2009). Asthma cost the U.S. about $3,300 per person each year from 2002-2007. About 2 in 5 uninsured people with asthma could not afford their prescription medicines and about 1 in 9 (11%) insured people could not afford their prescription medicines (CDC, 2011). About 13 million school days are missed due to asthma each year (Akinbami, 2006). The number of people with asthma continues to grow. About 25 million or 8 % of the population had asthma in 2009 compared with about 20 million in 2001(CDC, 2011). Racial, low socioeconomic status

and geographic disparities exist in asthma prevalence. It is one of the leading chronic conditions among children from racial and ethnically deprived socioeconomic backgrounds.

1.4 Asthma in Georgia

Asthma is a growing problem in Georgia with implications for public health approaches to intervention since there is no known medical cure (GDCH, 2010). In particular asthma is of concern especially in low income communities with racial and ethnic minority populations. The following statistics from the Georgia Department of Community Health (2010) provides a glimpse of the problems associated with asthma. Approximately 297,000 children (12%) of children ages 0-17 years have asthma in Georgia (Georgia Department of Community Health, Georgia Data Summary, 2010). Approximately 600,000 (9%) adults in Georgia have asthma. Asthma is more common among adult women (11%) than adult men (6%). Adults with higher education and income are less likely to be affected by asthma than adults with lower education and income. Children 0-4 years had the highest rate for asthma related emergency room visit (1,428 per 100,000 persons). The rate of emergency room visits decreased as age increased. In 2007 emergency room asthma related charges totaled over $63 million (GDCH, 2010). More than 10,000 hospitalizations for asthma occurred in Georgia in 2007 (GDCH, 2010). Blacks were twice as likely as whites to be hospitalized with asthma. Hospitalization cost totaled more than $132 million in 2007 (GDCH, 2010). Blacks were 2.7 times more likely than whites to die from asthma and women were 1.5 times more likely than men to die from asthma (GDCH, 2010). On average, 113 deaths per year in Georgia were attributed to asthma from 2001-2007(GDCH, 2010).

1.5 Factors that Contribute to Increased Risk for Asthma

Factors that contribute to asthma symptoms and severity include; viral infections (Gern, 2004; Martinez, 2003; Lemanske, 2003), allergens, such as dust mites, cockroaches, animal dander, and molds (Murray *et al.* 2001; Togias, 2003; Jaakkola *et al.* 2005), irritants, such as environmental tobacco smoke (ETS), and exposures to certain chemical fumes, gases, or vapors (Tager *et al.* 1993; Weitzman *et al.* 1990; Martinez *et al.* 1992; Malo *et al.* 2006), and miscellaneous causes such as exercise, food allergies, gastro esophageal reflux, aspirin or other nonsteroidal anti-inflammatory drugs (NSAID); sulfite sensitivity, and others (Weinberger, 2003; NHLBI; 1997, 2003).

However, Kilpatrick *et al.* (2002) report that medical and nursing education programs often fail to fully incorporate environmental questions and an exposure history into asthma management. In a recent study they reported that although over half of practicing pediatricians surveyed had seen a patient with health issues related to environmental exposures, fewer than 1/5th were trained in taking an environmental history. This underscores the importance of asthma interventions that emphasize environmental trigger avoidance, allergy reduction and education of providers. One such intervention is Accountable Communities Healthy Together-Asthma (ACHT-A) which is an asthma prevention education program that serves residents of Neighborhood Planning Unit-V of the city of Atlanta, Georgia.

The next section presents an overview of the Neighborhood Planning Unit-V community and the factors that pose risks for asthma exacerbation in the locality. In addition, the intervention goals and objectives of Accountable Communities Healthy Together-Asthma (ACHT-A) project are presented.

1.6 Project Site

NPU-V is located in Southwest Atlanta and consists of five in-town neighborhoods: Adair Park, Mechanicsville, Peoplestown, Pittsburgh, and Summerhill/Capital View. The approximate total population of NPU-V is 15,825. The socio-demographic profile of the NPU-V community as compared to the rest of the City of Atlanta indicates a higher African-American population, lower employment rates and income, and higher rates of crime and high school dropout (www.eco-act.org).

NPU-V is impacted by multiple stressors, including negative health outcomes. For every 10,000 residents, 73.6 people were hospitalized for diabetes compared to 12.2 people in other parts of Fulton County. Ninety-six men and 75 women per 10,000 from the area were hospitalized for ischemic heart disease compared to 61 men and 32 women per 10,000 in the rest of Fulton County. In addition, hospitalization rates for asthma in Southwest Atlanta for children 0-17 years old, is almost five times the rate of North Fulton County which is more affluent and more mixed. NPU-V has a lot of abandoned vacant lots and properties. Majority of the occupied housing in NPU-V was built prior to 1978 and is, poorly maintained. Older apartment complexes have problems with dampness and leaks leading to mold and mildew, which are airborne allergens and known asthma allergens for some people.

Vacant properties invite crime and many illegal activities including prostitution, drugs and alcohol, loitering and dumping of trash. These illegal behaviors impact the health of residents. There are many sites with illegally dumped trash, tires, construction debris, furniture and appliances as well abandoned cars. Excessive levels of trash invite vermin such as rats and roaches. Rodents are carriers of over 35 diseases spread both directly (bites) or indirectly (ticks,

mites, fleas). Roaches are known carriers of pathogens as well. Trash can also cause soil and surface water contamination. Residents have documented many instances of uncontained construction debris that can cause soil and surface water contamination (www.eco-act.org).

Furthermore, NPU-V is the nucleus of two of Atlanta's major expressways – Interstates 20 and 75/85. These freeways are among the most heavily traveled roads in the United States. The Georgia Department of Transportation indicates that an intersection in NPU-V (I-20 and Capitol Avenue) has an average volume of 191, 379 vehicles per day. In addition, the area has numerous industrial facilities, creating a high volume of diesel trucks traveling the neighborhoods' secondary streets (www.eco-act.org).

Atlanta is also known for its high number of "code red" air days (GDCH, 2010). In 2007, 49 days had an Air Quality Index that was rated as unhealthy or unhealthy for sensitive groups and 49 days were considered smog alert days. Exposure to air pollutants results in a range of adverse health effects including heart attacks and lung cancer. Due to the large areas of impervious surfaces in NPU-V, there is potential for chemical and microbial contaminants to collect further impacting the health of residents (Georgia Department of Human Resources, 2004).

1.7 The Accountable Communities Healthy Together Asthma Program (ACHT-A).

Currently in its third year, the purpose of ACHT-A is to decrease the burden and experience of adverse health effects associated with childhood asthma within NPU-V by the development of a program to address the multiple modalities of educational, medical, and environmental interventions for the management and control of asthma and its symptoms. ACHT-A is a collaborative program between the Georgia State University Institute of Public Health, Southside Medical Center, and the Department of Early Care and Learning: Bright from the Start. The

program targets children with asthma and those responsible for their care, to include parents, caregivers, doctors, community clinic nurses, and school teachers. Key components of the ACHT-A Program include: parent and child training in asthma management, in-home environmental assessments and intervention, practitioner training on current best approaches to asthma management, early care provider training, patient navigation and primary care services, and program evaluation. ACHT-A is designed to achieve the following goals: improve asthma self-management among children; improve access and quality of health services for children with asthma; improve knowledge and awareness among children with asthma, their parents/caregivers, and the general public; and utilize existing community partnerships to implement and sustain integrated, comprehensive, and community-wide health promotion strategies.

1.8 Asthma Prevention and Management

The National Asthma Education and Prevention Program (NAEPP) developed an evidence-based consensus set of guidelines for diagnosis and management of asthma (2007) for physicians and people who suffer from asthma. The guidelines include the use of a peak flow meter for self-monitoring to assess level of asthma control and signs of worsening asthma conditions. The guidelines note that, peak flow monitoring may be particularly helpful for patients who have difficulty perceiving symptoms, a history of severe exacerbations, or moderate or severe asthma. First, talk to your doctor, become familiar with medicine prescribed for you, and develop a written asthma management plan and secondly, get to know your triggers and take steps to avoid them. Thus, the goal of asthma management is to improve quality of life and health outcomes of people who suffer from asthma. Approaches to asthma management vary and include school-based education programs, environmental trigger control education, medical-home-based

programs, and community wide education programs. Expert Panel Report (EPR)-3 recommendations for Asthma Management and control identified 4 components of care for managing asthma as: assessment and Monitoring; assess asthma severity to initiate therapy; education; provide self management education- teach self-monitoring to assess level of asthma control and signs of worsening asthma; peak flow meter shows benefits to patients, using written action plan; avoiding environmental triggers, develop written action plan in partnership with patient; integrate education into all points of care where health professional interact with patients; control environmental factors and co-morbid conditions: recommend measures to control exposures to allergens and pollutants or irritants that make asthma worse; medications: select medications and delivery devices to meet patient needs and circumstances. These four components form the basis for ACHT-A program design and activities.

1.9 Purpose Statement

The purpose of this capstone is to provide policy guidance for public health practitioners, managers, and stakeholders who are concerned about reducing the burden of asthma in Georgia. This capstone will illuminate our understanding of benchmark states research on reimbursement and CHIP programs to inform policy in Georgia. Specifically this capstone addresses the role of reimbursement and community health workers in asthma management with the view to making recommendation for asthma stakeholders in Georgia.

1.10 Theoretical Framework

The social-ecological model will inform this capstone. The social-ecological model recognizes the interwoven relationship that exists between the individual and their environment with respect to disease management (CDC, 2009). While individuals are responsible for instituting and maintaining the life style changes appropriate for optimal health, it is also recognized that individual behavior is influenced to a large extent by social, environmental, community norms, regulations and policies. The most effective approach to health behavior change is thus a combination of individual and interpersonal, organizational, community and public policies. There are many factors that impact asthma health. In order to facilitate change it is important to address all the multiple factors associated with asthma at the individual, interpersonal, and at the policy level.

Chapter II

LITERATURE REVIEW

This chapter reviews the literature related to the health effects of asthma, studies of asthma management, the role of health insurance and reimbursement, asthma reimbursement mechanisms and discusses the role of community health workers in chronic disease management with particular reference to asthma management with implications for asthma management in NPU-V.

2.1 Health Effects of Asthma

Asthma is a chronic inflammatory condition of the airways. When you have asthma the airways that move air in and out of your lungs become narrow or blocked by mucus and airway muscle constriction. This leads to symptoms like chest tightness, shortness of breath, wheezing, difficulty breathing, coughing, and increased mucus production (NHLBI, 2004). People who have asthma are sensitive to things that do not bother other people. Triggers vary from person to person but they all cause changes in the airways. Symptoms may be temporary but asthma is a chronic condition. If you have asthma you need to take care of it even if you not experiencing any symptoms.

Asthma causes lower quality of life and large direct and indirect economic costs, especially missed school days for children and missed work days for adults. Children with asthma seem more uncomfortable and report lower perceived well-being, more emotional symptoms than children without asthma (Creer, Stein, Rappoaport, & Lewis, 1992). Magid et al, (2004) found an association between asthma severity and poor quality of life. For children with asthma, their quality of life decreased as asthma severity increased and also report that asthma severity is a

good predictor of Emergency Department visits. One reason why people who suffer from asthma continue to flood emergency departments is because of lack of health insurance. There is no cure for asthma at the moment but there are proven strategies that people who have asthma can adopt to manage their condition (IOM, 2000). Asthma influences multiple dimensions of child health (Forrest, Starfield, Riley, & Kang, 1997).

Asthma may be associated with poorer physical health, possibly because of the myths associated with physical activity and asthma exacerbation, and children with asthma were more likely to have learning disabilities than those without asthma (Fowler, Davenport, & Garg, 1992). The next section examines current asthma reimbursement mechanisms.

2.2 The Role of Health Insurance and Reimbursement

Reimbursement for healthcare services is dependent on insurance which may be private, workplace-based or federally subsidized, state or local. Historically, the first sickness clause was inserted in an insurance document in 1847. It is generally believed that Blue Cross Blue Shield established the first health insurance in 1929 when they covered teachers in Texas (Morrisey, 2008). Health insurance became widespread after the Second World War (Longest, Rakich, & Darr, 2000; cited in Casto & Layman, 2004) and has continued till now.

Our experience shows that one of the larger immediate concerns should be proper utilization of routine health care for the management of asthma and its symptoms. The majority of participants in ACHT-A were covered by state or private insurance, yet did not receive evidenced based care by a pediatrician for their asthma (Francesca Lopez, personal conversation)..

Laster et al. (2010) identified five barriers to asthma care and management as: child health belief/non action, caregiver health belief/non-adherence, lack of school/daycare support,

inadequate/inconsistent insurance coverage and healthcare provider issues. It appears then, that insurance coverage and reimbursement for asthma services are beneficial in an asthma management regimen, however, there is a gap in insurance coverage for majority of people in NPU-V because of their low socio-economic status, lack of employment, and other factors that make insurance coverage for health services impossible.

Halterman et al. (2008) also found significant association between insurance gaps and poor access to care among children with asthma in low income deprived communities. They therefore recommend the provision of uninterrupted coverage for children who suffer from asthma. With respect to NPU-V, insurance issues need to be addressed at both the state level and the federal level. This is because insurance policies affecting children is both a federal and state issue. The role for and asthma organizations and stakeholders at the state and national level is thus, health advocacy that will help improve or make changes in current insurance arrangements that affect low income minority ethnic populations.

Similarly, Bodenheimer et al. (2003) interviewed 77 program Directors of Chronic Care Programs in California Safety Net and found not one who had a solid reimbursement underpinning their practices. This researcher and associates observed that asthma programs rely on short term grants and often cannot be sustained once grant funding runs out. Predictably with lack of systematic funding, the pace of asthma care management in the state of California's safety net system has been very slow. This observation may be helpful to organizations involved in asthma advocacy in Georgia.

Acute care model calls for short-term physician interventions carried out by physicians, when applied to chronic conditions such as asthma, dooms many patients and their families to endless

emergency room revolving door alternating between rescue care and no care. Thus reimbursement built on an acute care model does not support the ensemble of interventions needed to treat a multi-causal chronic condition such as asthma today.

2.3 Asthma Reimbursement Mechanisms

Three characteristics describe various methods of healthcare reimbursement. These are the unit of payment, the time orientation, and the degree of financial risk for the parties (Bennett and Leighton, 1998). The unit of payment can range from a payment for each service such as payment for asthma diagnosis to a block payment for an entire population for a period of time to a government hospital or health department. The time orientation is prospective or retrospective. In prospective payment methods the payments are preset before care is delivered. In retrospective methods the payer learns of the costs of healthcare after the patient has already received services. Financial risks for the parties occur when the costs of health services are learned after the care is rendered. This places the insurance entity at risk. In addition, when the provider must project the costs of treating patients into the future and contract to provide all care for those estimated costs, the provider is at risk. Furthermore, patients also assume risk as they pay higher premiums for services.

Evidence from other states: Massachusetts Asthma Education Reimbursement

Massachusetts on June 30, 2010 enacted the Neighborhood Health Plan law, mandating a global or bundled payment system for high risk pediatric asthma patients. This law covers patient education, environmental assessment, mitigation of asthma triggers, and purchase of Durable Medical Equipment (DME). It has been piloted in several communities with highest rates of asthma in Massachusetts. For example, Children's Hospital of Boston launched the Community

Asthma Initiative (CAI) in 2005. Children's Hospital reported that between October 1, 2005 and September 30, 2009, CAI provided case management services to 441 children. Of the total number of families enrolled, 315, or 71%, received one or more home visits. Families enrolled in the year-long case management program reported a significant reduction in ED visits (65%), hospitalizations (81%) limitation in physical activity (37%), missed school days (39%) and missed work days (49%). In addition, there was a 71% increase in the number of children with up-to-date asthma action plans. CAI case workers both nurses and Community Health Workers provided homes visits, and other interactions with enrolled children (http://www.asthmacommunitynetwork.org/node/3344) Though this policy shows promise according Massachusetts Department of Public Health (2011), its future after 2012 is unclear as this arrangement was for a limited time frame. However, for FY2011, state budget includes a provision directing Medicaid to establish a bundled payment for asthma care that allows providers to design and deliver tailored interventions to children with asthma (http://www.mass.gov/legis/bills/house/186/ht04pdf/ht04800.pdf).

These interventions include patient education, environmental assessment, mitigation of triggers and purchase of necessary durable equipment. Lessons learned from the Massachusetts pilot study indicate patient education provided by health care workers and CHW's, environmental assessment, trigger mitigation and the purchase of necessary durable medical equipment support asthma management.

New York Asthma Education Reimbursement

Since 2009, the state of New York has reimbursed asthma self-management education by certified asthma educators (New York State Medicaid Update, 2008). Self- management training

services are to be provided by New York State licensed, registered, or certified health care professional, who is certified as an educator by the National Asthma Educator Certification Board (CAE). To enhance patient access, the 2009 law required that offices that do not directly offer asthma self management education refer patients in need of educational services to Medicaid practitioner offices or clinics that employ or contract with certified asthma educators. However, the law stipulated that a referral for asthma self- management education must be written by a physician, physician assistant or licensed physician assistant. Self-management services are to be billed by physicians or certified asthma educators. On the contrary, the law also stipulates that asthma educators who cannot bill Medicaid directly must enroll as non-billing Medicaid provider at the time of their enrollment.

Claims submitted for asthma diagnosis must use ICD-9 493.XX code. In an office setting when billing for asthma the CAE must submit an individual claim for educational services, and the National Provider Identifier (NPI). The following CPT Codes 98960-for individual education for 30 minutes; 98961-for group education, for 30 minutes session, 2-4 patients; and 98962-group education, for a 30 minute session, 5-8 patients.

In addition, Asthma Education Certified (AE-C) who is working under a Medicaid provider is qualified to be reimbursed for asthma education services.

Minnesota Asthma Education Reimbursement

In Minnesota, effective 10/1/04, MEDICA (Minnesota Medicaid/SCHIP) started reimbursing certified asthma educators (AE-C) who are MEDICA participating providers for asthma education provided to Minnesota Health Care. Education can be provided in either an individual

or in group setting and must meet program criteria in order to bill for such services (wwwdhs.state.mn.us/main/idcplg).

The Minnesota the metro school systems are providers for this program as well as any clinic that have a certified asthma educator on staff. Under the guidelines provided for billing, only a certified asthma educator who is working for a Medica participating provider may bill for classes or individual sessions. Schools or other organizations may bill Medica and then pay the certified asthma educator who taught the class under a subcontractor. Bill only once per session per member who is receiving education; parents/guardians who may learn along a young Medica member should not be billed separately. If there are multiple children in a family who are all taking a class together, bill for each child who has an asthma diagnosis.

Sessions may be billed 10 times in the first year after diagnosis, and 3 times per year thereafter. Sessions may be mixed, in any year, between individual and class sessions. CPT code S9441 described as asthma education; non physician provider session, per Medica member have established specifically for certified asthma educator billing purposes. To ensure that Medica standards are met, Medica conducts random class materials/chart audits to ensure that providers are meeting the program criteria and certification requirements (www.medica.com).

2.4 Medicaid

Medicaid finances healthcare for the indigent but not all who are poor and not all uninsured are covered. Title XIX of the Social Security Act of 1963, it has both federal and state funding. It is the payer of last resort. States can define covered services and the amount of state obligation is tied to its per capita income. Automatic eligibility under federal guidelines includes families with children receiving Temporary Assistance to Needy Families; people receiving Social Security

Disability Income; children and pregnant women whose income is at or below 133% of the Federal Poverty Level; others defined by federal law and there is no exclusion for having health insurance or a job. Medicaid is administered by the Georgia Department of Community Health (GDCH) and pays medical bills with federal and state tax money. The process entails eligibility through your local Department of Family and Children Health Services (DFACS). There is a 45-60 day waiting period for processing and determination of eligibility after the submission of an application for coverage. Specifically in Georgia, PeachCare for Kids is Georgia's version of SCHIP (State Children Health Insurance Program).

PeachCare for Kids is a comprehensive healthcare program for uninsured children living in Georgia. Health benefits include primary prevention, specialist, dental and vision care. The plan also covers hospital emergency room visits, prescription medications and mental healthcare. PeachCare for Kids is coordinated by Georgia Healthy Families Care Management Organization (CMO). Current policies for coverage for children in Georgia are silent on services provided by community health workers. In addition, asthma management services not provided in clinical settings are not reimbursed by the Georgia Families Care Management Organization.

In view of the numerous recommendations that community level interventions improve asthma care in minority low income communities, lack of reimbursement for these services are a major hindrance to asthma services in clinical settings because of lack of insurance. Caregivers with private insurance identified high co-payments and premium as barriers to care especially high copayment for medication. Families in low income communities require asthma management interventions tailored to their specific characteristics barriers and challenges. Failures to meet eligible requirement for Medicaid or SCHIP (State Children Health Insurance) were also

mentioned as barriers that specifically continue to impact low-income families dealing with asthma.

Annual review for SCHIP places additional burden on families using PeachCare for Kids in Georgia. Whenever, changes in enrollment are announced many families are unable to qualify for continuing coverage. In some cases once denied families are unable to reenroll hence; their only gateway for hospital services is the emergency room. Centers for Disease Control (2011), report that more uninsured than insured persons with asthma reported not being able to buy prescription medication for the control of their asthma (40% versus 11.5%).

The report further notes that reimbursement rates impact provider participation and consumer access to healthcare services, hence cutbacks to Medicaid's already low rates and SCHIP undermines medical access for low-income people who have asthma. The CDC (2011), thus recommends that actions to expand reimbursement for asthma education and environmental control services might further improve the application of asthma self management. Asthma care requires staffing patterns that assure cultural and linguistic, close follow-up, and a medical-social approach that supports families to develop the capacity to manage asthma as a long-term chronic condition.

2.5 Community Health Workers and Disease Management

Community health workers are lay members of communities who work either for pay or as volunteers in association with the local health care system in both urban and rural environment and usually share ethnicity, language, socioeconomic status and life experiences with community members they serve.

The job description of community health workers vary by setting, employer and community needs. The core roles that community health workers play according to the National Community Health Advisor Study of 2005 includes; provide cultural mediation between communities and health and human services systems, informal counseling and social support, culturally appropriate health education, individual and community advocacy; building individual and community capacity; linking community members with needed services and; basic screening services. Community health workers work in health facilities providing case management, client education, interpretation and follow-up care. In addition, some community health workers work for non-profit organizations, providing community organizing, health education and screening services.

The educational background of community health workers vary, ranging from formal community college level programs that grant certification/ associate degrees to some high school and on the job training. According to the National Conference of State Legislatures (2007), 30 percent of community health workers have a 4 year college degree, 35 percent have a high school diploma and 7 percent had less than a High school diploma with 7 percent reporting that they had earned a 2 year associate degree.

Community health worker positions are funded by federal, state, and local government, private and nonprofit organizations. They are funded on a short term basis and this is a challenge for developing workforce capacity for public health. About two thirds of community health workers are wage earners and 33 percent are volunteers. In addition, community health workers are hired to support specific health initiatives or programs which may depend on a short term funding sources.

The salaries of community health workers vary from urban centers to rural centers and from one locality to another depending on the local economy, wage scales and demand. Accordingly, annual salary range from $35,000-$42,000 and for senior community health workers from $42,000-$52,000 (www.explorehealth.org). According to American Public Health Association (2010) there is no national standard for CHW training or professional certification. CHW receive on the job training tailored to the specific program with which the CHW is hired. The training offered at the employer level may be comprehensive or may present only skills required specific to the project in question. In some cases these skills may not be transferrable to other related jobs, making it difficult for their permanent employment. However, some states such as California and Minnesota have established training guidelines and certification programs. Texas, Alaska, and Ohio have active CHW certification programs (APHA, 2010).

In a randomized control trail of Community Health Worker (CHW) intervention to increase insurance among Latino children in Boston, Flores, Abreu, Chaisson et al. (2005) found that children in the CHW intervention groups were significantly more likely to be insured continuously compared with children in the control group.

Takaro, et al (2004) conducted an intervention of Healthy Homes II-Asthma Project of Seattle and King County. The purpose of the intervention was to improve the quality of life for children with asthma and their families in low income minority children. Community health workers of shared ethnic, linguistic and cultural backgrounds as the participants conducted initial home environmental assessments in order to provide action plans and packages of materials to reduce home environmental triggers. These packages included bedding covers, vacuum cleaners, and dirt finders and double-layer reduced emissions vacuum bags, commercial quality doormats, cleaning kits, mops, buckets, rubber gloves, food storage containers and assistance with

cockroach and rodent removal. Results revealed that a global approach to environmental interventions in the homes of low-income children with asthma is easily taught and understood by families. Thus, intervention can change behaviors related to asthma triggers, reduce many of the offending exposures and improve asthma morbidity and caregiver quality of life with community health workers playing a pivotal role in the educational program.

Similarly in a study by Joseph et al (2003) that examined the use of dust mite covers for mattress box springs and pillows of children with asthma in low-income homes in West Virginia, revealed that providing dust mite bedding encasings at the time of asthma diagnosis significantly increased compliance at two-month home visit. The authors advocate that Medicaid and insurance companies should be encouraged to pay for casings as a cost effective measure to improve asthma care in children with dust mite allergy as well as reimburse community health workers for their role in asthma self-management education.

Wilson et al (2001), in a health care facility-based intervention to reduce environmental tobacco smoke exposure for children with asthma, that was carried out by community health workers, reported a significant increase in prohibition of smoking in the home and a significant reduction in hospitalizations and emergency room visits among children 3-12 in Fresno-California. Hence, an educational intervention that emphasized reduction in environmental tobacco smoke exposure based on a multitude of strategies aid in behavior change and lower odds of more than one acute medical visit for asthma exacerbation. This study has implications for asthma management that is hospital based and the control of environmental tobacco smoke education provided by hospital staff, volunteers, and community health workers in the management of asthma.

Though, individuals may be aware of asthma-related services provided by their medical doctors, the payment for these services is more often than not a problem especially in low-income communities. Health insurance is a problem to access to medical treatment in addition to other barriers to asthma care and management.

In a study by Beckham et al (2004) in Hawaii of 3-14 years old and their parents, community health workers were trained in the areas of anatomy and physiology of asthma symptoms and triggers, severity classification, asthma medications, peak flow meter, inhaler and spacer use and care and relaxation techniques. The program was adapted to be culturally sensitive. Families received home visits from community health workers and were educated on environmental triggers, treatment compliance and discussed barriers to medical care.

Results revealed a significant decrease in both expenditures and asthma-related visits after community health worker intervention. In addition, emergency related visits decreased after initial community health worker encounter. There was also a significant improvement in quality of life as expressed through frequency and time of asthma symptoms.

The role of community health workers in disease management have been shown to aid in the delivery of health promotion education, especially in minority low-income communities with ethnic and economic health disparities (Wilson et al (1996); Krieger (2009); Lwebuga-Mukasa (2002); and Fisher-Owens, 2011). School-based asthma programs also show promise in assisting school children with asthma better manage their asthma. Community-wide approaches to asthma management have also shown promise in managing asthma exacerbations. These approaches are worth emulating by other community asthma education and management programs such as Accountable Communities Healthy Together-Asthma (ACHT-A) program, a

partnership of Georgia State University, Southside Medical Center, and Georgia Department of Early Care Bright from the Start.

In a school-based asthma intervention program in Buffalo, New York, that implemented a policy of requiring children diagnosed with asthma that need daily medication, to have a health care provider-approved asthma care plan at school; researchers provided group education to parents/guardians/school personnel on asthma management and trigger avoidance. They reported increased knowledge of signs and symptoms associated with triggers and better management of asthma and less Emergency Department (ED) visits. This results points to the need to continue school-based asthma education and management practices to increase the knowledge and learning needs of providers and caregivers. This study has implications for asthma management at the school and community level (Lwebuga-Mukasa, and Dunn-Georgiou, 2002).

Wilson et al (1996) report that parent and child education provided in a Wee Wheezers Education Program is beneficial not only to the quality of life, but also financially when considering the lost time for work for parents healthcare costs and child care costs. This study has policy implications with respect to asthma management, health education and reimbursement associated with community health workers and other actors who provide services in the management of chronic diseases.

2.6 Asthma and Low Literacy Level

The 1998 National Community Health Advisor study (Rosenthal, Wiggins, Brownstein et al. 1998) identified the following role for CHWs as:

Bringing and providing cultural mediation between communities and health and social service systems; providing culturally appropriate health education and information; ensuring people get

services they need; providing informal counseling and social support; advocating for individual and community needs; providing direct service, such as basic first aid and administration of health screening tests and building individual and community capacity.

Community Health Workers accordingly provide health information when patient literacy level are low. For example, researchers (Thai & George, 2010) report that low health literacy is associated with less accurate metered-dose inhaler techniques, and less use of peak flow meters, asthma action plans, as well as less ability to calculate peak flow zones, however, with the assistance of CHWs patients are taught how to use their peak flow meters and metered dose inhalers. In other cases, low levels of literacy according to Thai and George have contributed to higher rates of emergency department visits (Thai & George, 2010; William et al 1998). In addition, beginning school with asthma independently predicts low achievement in prospective cohort of children. Entering school with asthma was a significant predictor of low school achievement independent of asthma severity, high absenteeism, or other covariates of low achievements (Liberty et al, 2010). Care management could eliminate 99% of hospitalizations and 95% emergency department visits in children with asthma (Kaiser Permanente Northern California, 2004). Care management is based on the chronic care model, and blends medical and social approaches, combining optimal clinical care with self-management support. It is based on the premise that majority of chronic care is self-care and occurs in homes, and communities.

Georgiou et al (2003) report the benefits of individual education, provider education and supportive relationships as important in understanding asthma management information, confidence in managing their children's asthma, and performance of specific preventive behaviors. Thus, this large scale-intervention produced measurable improvements in asthma-related health and lessened the burden of asthma on the family unit.

2.7 Asthma and Health Communication Campaigns

Furthermore, in an intervention study based on health communication campaigns, and promotions, group education, supportive relationships in a predominantly African American community, Fisher and associates (2004) report increased parental knowledge of asthma immediately decreased anxiety and child asthma morbidity scores. The community organizing approach to chronic disease care used in the neighborhood asthma coalition (NAC) accomplished the goals of instituting a neighborhood promotional and educational campaign, encouraging involvement of neighborhood residents in planning and implementing asthma management classes and recruiting neighborhood residents to provide social support for parents and children. Again community health workers were the principal agents of communication. Community Health Workers have been instrumental in health behavior change communication campaigns as well. Blake (2008) reports the use of mobile phones to improve nurse-patient communication and monitor health outcomes in chronic disease management of cancer, heart disease, asthma and diabetes. Briones, Lustik and Lalone (2010) also report the use of social marketing strategies to increase parent and caregiver knowledge of asthma symptoms amongst children in rural communities. Wallack (2000) and Schiavo (2007) report significant improvements in the use of preventive services in chronic disease management in low-income communities where health communication was the central piece of the intervention. Thus the importance of health communication in chronic disease management cannot be overemphasized.

2.8 Asthma and Environmental Trigger Education

Exposure to tobacco smoke, dust mites, pets and animal dander, cockroaches and fungi both in indoor and outdoor can trigger asthma attacks in people who are hyper sensitive, however in

Georgia minority communities continue to be plagued by these environmental triggers due to many factors beyond their control such as low-income housing, air pollution and illegal waste dumping (Georgia Department of Community Health, 2010). To reduce exposures to triggers, it is recommended that people, who suffer from asthma work with their doctors to create an asthma management plan, monitor their breathing and airways with a peak flow meter, treat symptoms early and learn when to seek medical help. Community Health Workers have been at the core of asthma environmental trigger education

Summary

This review has illuminated our understanding of the relationship between health insurance and asthma management in the following areas. Asthma is a chronic disease and lack of insurance adversely affects asthma management. Asthma program funding should be based on chronic care model and not an acute care model to ensure better asthma management. Asthma management provided by community health workers have been effective at maintaining health behavior change (trigger avoidance) however, there is no policy framework for their reimbursement and finally, Bodenheimer et al. (2003); CDC (2011); Halterman (2008) and Laster et al. (2010) recommend changes in current reimbursement systems for asthma services. The benchmark states of Massachusetts, Minnesota and New York provides models of reimbursements for asthma that could be adopted in Georgia. These states have established modalities for asthma reimbursements for community health workers and other providers of asthma education based on the enactment of state laws that are specific to asthma.

Chapter 111

ANALYSIS, DISCUSSION, RECOMMENDATIONS AND CONCLUSION

The role of reimbursement for medical services is critical to managing asthma and impacts access to health care services, however, minority communities still struggle to enroll in Medicaid and SCHIP. Healthcare facilities that accept Medicaid and Peachcare for Kids insurance are not aware that asthma education services provided in their facilities are billable (NAEP, 2007). It appears that PeachCare for Kids/SCHIP may not be the solution that children who have asthma and require health insurance coverage. Perhaps, a more comprehensive system that does not stigmatize the poor into one state or federal insurance system is needed. This new system would provide care irrespective of income, disease condition, and be appropriately reimbursed by both private, federal and state government payers.

Health behavior change education has been shown to aid in asthma management Beckham, 2004, Wilson et al 2001, and Takaro et al (2004). The role of community health workers in health promotion has been well documented in the literature as well (Wilson et al (1996), Krieger (2009), Lwebuga-Mukasa (2002), and Fisher-Owens, 2011). What is needed is a policy on how and when to utilize the services they provide in the management of asthma.

From an ecological perspective of disease management, community health workers are not only a resource that communicates effectively with the communities they serve, but they are seen as 'insiders' and trusted with health information and an important link between health programs and the communities they serve. They assist in disease management and are catalysts for health behavior change in communities. The medical community and public health should embrace what they do in health management. Public health workforce can rely on community health

workers to reach difficult to reach communities to initiate preventive education in chronic disease management. As noted earlier, numerous studies have shown that community health workers play an important role in the management of asthma especially in racial and ethnic minority urban areas. The cost associated with their services as noted is manageable and this further underscores the importance of relying on community health workers instead of other health professionals that may be too expensive in the current economic climate and or the needed community attachment for carrying out health promotion in community settings. There should be a policy shift to address the wider use of community health workers in disease management in terms of education and training, uniform state and national certification, and remuneration. The state of California offers a model for the work of community health workers in disease management and asthma and I recommend that asthma policy makers in Georgia, insurance payers, and all stakeholders interested in reducing the burden of asthma take a critical look at what has been achieved in California.

Recommendations

To further assist asthma stakeholders, public health managers, state policy experts can improve the management of asthma and based on the review of literature that identified the following four areas of focus (1) the importance of reimbursement in asthma care delivery in minority communities; (2) the importance of community health workers in asthma management (3) the importance of trigger avoidance education (environmental health education); (3) public health policies to address asthma management at the micro and macro community level; the following policy strategies are recommended to organizations and stakeholders interested in reducing the burden of asthma in Georgia.

1. Healthcare insurance reimbursement continues to impact low income communities dealing with the high prevalence of asthma. It appears this situation will not change for a long time to come since the recently enacted Affordable Care Act (2010) did not provide universal coverage or a public option for low-income families. Though, Medicaid and SCHIP provide coverage for children aged 0-17 (the target population for ACHT-A program and their parents) the guidelines associated with eligibility and services are cumbersome to such an extent that most providers refuse to participate in Medicaid and SCHIP. This underscores the need for a more streamlined system that is understood by both providers of services and recipients of services. Therefore it is recommended that reimbursement mechanisms for asthma are based on the models for asthma reimbursements in Massachusetts, Minnesota and New York as discussed earlier. Of particular importance is the reimbursement for asthma self-education provided by Community Health Workers. The states of Massachusetts, Minnesota and New York have been able to pass legislations that support the reimbursement of services provided by certified asthma educators. Georgia asthma coalitions, asthma programs and public health advocates should consider some of these practices with the aim of availing Georgians of similar benefits as is enjoyed in the states of Massachusetts, Minnesota and New York.
2. Understanding how services provided are billed and paid for by Medicaid and SCHIP will further enhance asthma management at both the clinical and the personal level. It is suggested that specific billable asthma codes established by the Center for Medicare and Medicaid Services be made more visible and understood by all (medical, pharmacy, and public health). The National Asthma Educator Certification Board (NACB) has

developed a website to provide various healthcare providers a general overview of information required to bill asthma education and treatment claims at the federal, state and local levels (www.naecb.org/cbr/). Perhaps state Medicaid/SCHIP/PeachCcare for Kids and all concerned with asthma should visit and learn from this effort.

It should be worthwhile to educate medical and pharmaceutical companies about how they can use current billing codes as well as advocate for the adoption of asthma specific codes. Asthma coding and billing codes for healthcare providers are available at www.naecb.org/links.asp. This is a good resource for asthma stakeholders in Georgia to share with providers so as to know what doctor and pharmacy services are reimbursable and at what rate. It is recommended that because most providers assume that asthma services are not reimbursable, they do not welcome PeachCare for Kids patients. However, knowing that there are billing codes for asthma related diagnosis would go a long way in ensuring quality asthma care of residents of Georgia who suffer from asthma. Through basic advocacy strategies, health insurance reimbursements can be placed on the agendas of influential stakeholders such at the state and national legislatures, powerful community advocates and politicians.

3. An important policy goal for sustaining asthma programs in Georgia is to train more community health workers to carry out asthma health promotion and education in the community. Community health workers can be recruited. Once trained, their performance should be reviewed periodically as established and where appropriate continuing asthma education and certification should encouraged. The National Asthma Educator Certification Board offers training programs for people interested in working with asthma (www.naecb.org).

Perhaps since there is no national standard for training community health workers, individual states can design policies on curriculum and training requirements to meet overall broad objectives of asthma program designers in Georgia. Their training could be incentivized to encourage more participation. By investing in the training and certification of community health workers, who work with community members, state asthma stakeholders would be accomplishing one of key goals of asthma management as stipulated by EPR-3 (2007); awareness education, and asthma self-management of people who have asthma. Community health workers because of their varied backgrounds and willingness to serve in their respective communities are a good resource for the promotion of health in the community. Medical models for chronic disease management that incorporate community health workers hold promise for asthma health outcomes in minority communities (Wagner, 1997).

Moreover, education services provided by community health workers and public health staff could be appropriately billed if payment policies are established at the national and state level for reimbursement. In this regard, it is recommended that advocacy efforts are initiated to ascertain how asthma education services provided by non-medical staff in non-medical facilities could be reimbursed. This will assist in alleviating interruptions in funding for community asthma education programs that depend on external grants. It is recommended that asthma programs across the state explore asthma reimbursement policies of states such as Massachusetts, Minnesota and New York.

4. Finally, I recommend behavior change communication as a central piece of asthma management for the state of Georgia. This is because community health worker programs have shown significant improvements in patients' use of prevention services such as

chronic disease management in low-income communities where health information was the central piece of the intervention. (Wallack, 2000). Message development for technological interventions may be informed by social marketing, consumer information processing and Diffusion Theory. For example, interactive websites, mobile telephones, personal digital assistant (PDA) delivery of programs, device portability via wireless applications, integrated secure database linkages, and web television with tailoring to consumer preferences are some technological strategies that asthma community organizations, and stakeholders could explore in the design and diffusion of asthma management practices. These new technologies have the added benefits of providing the following: interactivity; tailoring; instantaneous feedback; appeal and convenience; channel preference; flexibility; engagement; credible simulations; and openness of communications.

Majority of NPU-V children and participants in ACHT-A; asthma training programs have modern electronic devises that could be adapted to provide further health and behavior change information for asthma management at the individual level. Personal data applications from smart phones could be used in the provision of messages and on trigger prevention, the 4 steps of asthma management and reminders to routinely check their peak flow rates. Where appropriately adapted these new Internet Communication Technologies (ICT) could also serve as appointment reminders for routine doctor and pharmacy visits.

Conclusion

Asthma is a chronic disease that requires multiple approaches to prevention and exacerbation. Current approaches to asthma management that incorporate recommended EPR-3 (2007)

recommendations still hold promise. However, a comprehensive state policy on asthma management that delineates reimbursement mechanisms for asthma self-education, environmental trigger avoidance, carried out by community health workers is needed. A comprehensive asthma reimbursement system would assist providers and payers better serve people who suffer from asthma. Asthma reimbursement practices of Massachusetts, Minnesota and New York could serve as models for Georgia asthma organizations, the public health community and stakeholders as they debate the issue of asthma reimbursement in community settings. The examples of Massachusetts, Minnesota and New York where, budget amendments and the enactment of specific reimbursement laws for asthma that made changes in Medicaid at the state level provides a framework for policy development on reimbursement for asthma in Georgia. Health insurance payers can play a significant role in the management of asthma in community settings if they can accommodate changes to current practices thereby allowing not only physicians, but community health workers who provide asthma self-management education and environmental trigger avoidance education to be reimbursed. To make these changes in reimbursement policies possible, advocacy efforts are needed by such bodies and agencies as the Georgia Asthma Coalition, the Georgia Department of Public health, and all stakeholders whose principal goal is improved quality of life for asthma sufferers in Georgia.

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