



# Making Education Count: The Nurse's Role in Asthma Education Using a Medical Home Model of Care

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Asthma care for patients who have limited health literacy is very costly. The resources to help patients who have lower health literacy levels are very few and are not well identified. Significant gains in asthma control, self-efficacy in managing asthma, and improvement in overall costs of care for this patient population can be achieved when health literacy challenges are addressed. This research suggests that one-on-one education with an asthma educator that specifically addresses health literacy levels and care designed around the National Asthma Guidelines can produce significant reductions in the cost for asthma care through decreased emergency department visits and hospitalizations, and improved self-management of asthma exacerbations.

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## Overview

THE EPIDEMIC OF asthma in the United States has been well documented in the literature. It is a growing national health concern that disproportionately affects minority and poverty-stricken groups. Asthma affects 12.7% of children younger than 18 years in the United States. It accounts for 12.8 million missed days of school a year, and as a nation, we spend an estimated 14 billion dollars to care for people with asthma (Moorman et al., 2007). In addition, the parents of asthmatic children whose asthma is not controlled have a sixfold increase in lost days of work due to their child's asthma over those who are controlled (Laforest et al., 2004). Statistics detail that those children who are poor and those of African American descent have higher incidence of asthma.

## Disparities and Asthma

The African American population has a higher incidence of asthma than the general population. It is estimated that

approximately 9.2% of African Americans have been diagnosed with asthma during their lifetime (Moorman et al., 2007). Despite a plateau in asthma prevalence over the past several years in the general population, the African American population is experiencing a disproportionate increase in prevalence and in the morbidity and mortality associated with asthma. Disparities in health care availability and poverty levels have been identified as key elements in explaining the differences among groups. African Americans also have a higher risk for low health literacy levels, which escalates the burden of the asthma experience. The Centers for Disease Control and Prevention (CDC) reported that African American children have a 260% higher emergency department (ED) use rate as compared with White children (Akinbami, 2006).

## Health Literacy and Asthma

According to the National Center for Education Statistics, in the United States, low health literacy levels affect an estimated 14% of adults (National Center for Educational Statistics, 2009). Health literacy refers to the wide range of skills and competencies that people develop to seek out, comprehend, evaluate, understand, and apply health

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information and concepts to make informed choices, reduce health risks, and increase quality of life (Zarcadoolas, Pleasant, & Greer, 2005). When parent's/guardian's health literacy levels are low, persons affected are unable to use printed and written information to function in society. Risk factors for limited literacy include poverty, membership in an ethnic or minority group, and advanced age. Inability to read written instructions, not understanding verbal instruction, and lack of verbal skills to clarify instructions are a few of the problems faced by this population. Assessments of health literacy are considered minimally by staff when evaluating written forms or inability to fill out such forms. However, assessing health literacy is even more detailed and often not evaluated when preparing teaching for an individual. Even those who may seem very literate in everyday speech may have extreme difficulty when trying to traverse the field of health care literacy. Those who start with low literacy of their own language are then at an added hardship when faced with the new language of health care. Asthma care has grown exponentially in its proliferation of new words to describe inhalers, devices, medicines, and techniques. Patients are at an extreme disadvantage when trying to care for their disease if health literacy assessment is not a part of the health education equation.

Low literacy levels have been associated with worse asthma care measures, increased use of EDs for care, increased rescue medication use, and higher asthma severity levels (Dewalt, Dilling, Rosenthal, & Pignone, 2007). Adult caregivers with low literacy are 1.2 to 4 times more likely to exhibit negative health behaviors that affect their child's health, and the children are twice as likely to use more health services (Sanders, Federico, Klass, Abrams, & Dreyer, 2009). People whose literacy levels are low report poorer quality of health, poorer asthma control, and less self-efficacy in managing their asthma than those with higher literacy levels. Bandura (1977) proposed that self-efficacy is the most important prerequisite for behavioral change because it affects how much effort is invested in a given task and what level of performance is attained.

## Original Asthma Study

In 2006, a study was undertaken to investigate the relationship between health literacy levels, knowledge of asthma, and self-efficacy in managing a child's asthma in an African American population in a Midwestern urban environment. The primary aim of the study was to examine the impact of health literacy and self-efficacy of the parent/guardian of an African American child on their child's level of asthma control. The research study is reported in the *Journal of Pediatric Nursing*, vol., 2009 (Wood, Price, Dake, Telljohann, & Khuder, 2009). The sample came from the patient populations of two pediatric pulmonologists in one office and five pediatricians in another office (Wood et al., 2009). The study was composed of the first 198 parents/

guardians who came into the offices on the days the study was conducted (Table 1). Only parents/guardians of African American children, with ages 5 through 12 years, with asthma were selected for the study (Table 2). A four-page, 39-item questionnaire was initially developed for this study based on a comprehensive review of the literature. Questionnaire items included questions that related to the parents'/guardians' knowledge of asthma and their self-efficacy (efficacy expectations and outcome expectations) to manage their child's chronic illness (Wood et al., 2009).

## Instrument Testing

Face validity of the survey instrument was established by writing the items based on the information obtained from a comprehensive review of the literature (Davis & Grant, 1993; Fullerton, 1993). Content validity was established by having the instrument reviewed by a panel of experts ( $n = 6$ ). The instrument was sent to six experts with publications in the area of asthma, survey research, and health literacy, and the questionnaire was slightly modified based on their input (Wood et al., 2009).

The responses to the final questionnaire were used to calculate the internal reliability of the questionnaire. Cronbach's alphas were calculated on the Likert-type items, and the alphas were .90 for efficacy expectations and .82 for outcome expectations. The stability-reliability of the instrument was determined through test-retest (Creswell, 2005). A convenience sample of 20 parents/guardians was selected for assessing instrument reliability. These parents were asked to complete the survey on two separate occasions, 1 week apart. Pearson's correlation coefficients were calculated to determine the stability-reliability of the survey subscales, and efficacy expectations ( $r = .97$ ) and outcome expectations ( $r = .98$ ) were very high (Wood et al., 2009).

**Table 1** Demographics and Background Characteristics of Child With Asthma—Original Study

Item	<i>n</i> (%)
Age of child (years)	
5	50 (25.3)
6	25 (12.6)
7	26 (13.1)
8	22 (11.0)
9	19 (9.6)
10	11 (5.6)
11	13 (6.6)
12	32 (16.2)
Gender of child	
Male	111 (56.1)
Female	87 (43.9)

Note:  $N = 198$ . Data from Wood et al. (2009).

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