Addressing Asthma Disparities Using Clinical Decision Support in the Electronic Health Record

Anna M. Gard, Lois A. Wessel

In lieu of an abstract, here is a brief excerpt of the content:

When asthma is poorly managed, its adverse impact is felt community-wide, in increased health costs, lost school days and work time, poor quality of life, increased illness, and death. According the to the Centers for Disease Control and Prevention (CDC), 18.7 million adults and nearly 7 million children had asthma in 2010, a 15% rise since 2001.' Asthma is responsible for 1.8 million emergency department (ED) visits, and close to 14.2 million outpatient visits a year.

Asthma rates are highest in minority populations. According to the CDC, African American children are twice as likely as White children to have asthma.' African American and Puerto Rican children have higher rates of asthma prevalence than White children, and of hospitalization and ED utilization. Ethnic differences in asthma prevalence, morbidity, and mortality are strongly correlated with poverty, poor urban air quality, indoor allergen exposure related to substandard housing, lack of patient education, and lack of consistent medical care that is associated with health literacy and language proficiency. Inner-city asthmatics with limited English proficiency have significantly poorer asthma control, higher rates of resource utilization, and a lower quality of life. Additionally, limited English proficiency is associated with increased concerns about medication side effects, decreased self-efficacy, and lower adherence rates to one's medication management plan.

Poverty is a significant factor in asthma disparity. Individuals with a family income below the federal poverty line have higher asthma prevalence than those above the poverty line and are more likely to lack a primary care provider, use emergency department care, and live in substandard housing that places them at substantial risk of ongoing exposure to asthma triggers. According to the National Center for Health in Public Housing, residents of public housing developments have higher asthma rates as a result of environmental factors, as well as complexity managing the disease.

In 2007, The National Heart Lung and Blood Institute's National Asthma Education Prevention Program (NHLBI NAEPP) updated the clinical practice guidelines for comprehensive asthma management in response to increasing prevalence of asthma morbidity. The goal of these guidelines is to focus on four essential components in asthma management: 1) measures of assessment and monitoring, 2) medication management, 3) control of environmental factors, and 4) targeted education. While these guidelines were released in 2007, asthma morbidity continues to increase. This is partly due to incomplete adoption, limited implementation, and lack of familiarity with the guidelines for the diagnosis and management of asthma. The challenges of distilling the lengthy guidelines into a usable format for providers and adapting them into clinical practice are numerous. Many providers lack awareness of their existence or feel too overwhelmed by the demands of clinical practice to adopt them.

The Patient Centered Medical Home (PCMH) care model provides a framework for integrating the NHLBI asthma guidelines into asthma management by focusing on six standards: 1) access, 2) care management and care coordination, 3) self-care and community resources, 4) patient tracking, 5) population health management, and 6) quality improvement measures. The PCMH model enables increased access to carevia improvement in scheduling practices, including same-day appointments and rapid follow-up from ED visits and hospitalizations. Planned care visits are scheduled to address and review asthma medications, education, and asthma action plans. The PCMH provides learning materials at the appropriate literacy level, as well as translation services for families with limited English proficiency (LEP). The health care team (which includes clinician, nurses, patient navigators and/or community health workers) engages the patient and family as partners in developing a care management plan that

incorporates local community and clinic resources. Examples include access to medications and spacers through prescription assistance programs, smoking cessation resources for family members to reduce second-hand and third-hand smoke exposure, and home health visits to address potential indoor environmental triggers.

The electronic health record (EHR) supports PCMH population management through the ability to capture data to identify patients with asthma, including status of asthma severity and control, number of asthma ED and hospitalization visits, medication use, and flu vaccine status. These reports are used to drive asthma case management initiatives such as group visits, home visits, and additional asthma education resources. Clinical decision...

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Asthma rates are highest in minority populations. According to the CDC, African American children are twice as likely as White children to have asthma.[6,7] African American and Puerto Rican children have higher rates of asthma prevalence than White children, and of hospitalization and ED utilization.[8] Ethnic differences in asthma prevalence, morbidity, and mortality are strongly correlated with poverty, poor urban air quality, indoor allergen exposure related to substandard housing, lack of patient education, and lack of consistent medical care that is associated with health literacy and language proficiency. Inner-city asthmatics with limited English proficiency have significantly poorer asthma control, higher rates of resource utilization, and a lower quality of life.[9] Additionally, limited English proficiency is associated with increased concerns about medication side effects, decreased self-efficacy, and lower adherence rates to one's medication management plan.[10]

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