Reducing Asthma-Related Episodes and ED Visits Among Children in Eastern NC through Environmental Home Assessments

Constantine Unanka, MSEH, MPH
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Background

Eastern North Carolina has the highest rates of asthma emergency department visits and in-patient hospitalizations in the State of North Carolina. Through home-based visits, National Institute of Environmental Health Sciences guidelines were used to reduce environmental exposures in the home to minimize asthma triggers in children.

Project Goals

For children with asthma, living in poor quality, indoor housing environments can play a critical role in causing asthma attacks and ED visits.

By the conclusion of the fellowship year, the goal was to assist at least 25 of the 35 families served in achieving 3 of the following:

- Properly using asthma medication as prescribed, following their asthma action plan
- Reduce ED visits by 50-75% over a 5 - 6 month period
- Reduce the number of times a rescue inhaler is needed to less than twice a week
- Reduce the occurrence of waking up from sleep due to asthma symptoms to less than twice a month
- Eliminate at least one environmental trigger in the home

Intervention Strategies

The project utilized two intervention strategies;

1) Home-based asthma intervention approach that includes a combination of tools, including an environmental visual assessment checklist to identify asthma triggers present in the indoor environment. Through home assessments and interviews with families, it is possible to determine asthma triggers related to asthma symptoms and attacks. Each home is evaluated for the presence of cockroaches, rodents, mold and moisture, dust, signs of smoking indoors, roof leaks/water damage, fragrances, stuffed toys and furry pets. Environmental measurements in the home are collected using 1) an Amprobe THWD-3 temperature and relative humidity device; and 2) FLIR (Forward-Looking Infrared Device

2) SDOH screening tool. A SDOH screening tool is used to evaluate the socio-economic and well-being of family needs (i.e., food insecurity, housing insecurity, safety, stress and transportation issues.

Results

- 26 of the 35 families eliminated at least one environmental trigger in the home.
- 24 out of 35 children reduced the need for a rescue inhaler to less than twice a week through asthma education and/or home remediations.
- 10 out of 35 families reported the reduction of coughing episodes at night.
- ED visits have been reduced to an all-time low with only 1 child reporting to the hospital after participation in our program.

Discussion

Asthma is a respiratory condition in which the bronchi of the lungs undergo inflammation, causing constriction in the airways making it difficult to breathe. There are roughly 6.2 million children under the age of 18 living with the condition in the United States, as it is the number one leading chronic illness among children and youth.

Greater emphasis is needed on providing education about asthma triggers and early detection signs to avoid asthma attacks. With increased knowledge, informed decisions could be made to prevent asthmatic episodes resulting in fewer days missed at school and less interrupted sleep, which is arguably just as important.

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www.ncschweitzerfellowship.org
(704) 893-6596