Children's Hospital of Philadelphia
PolicyLab

CAPP+: How Home Repairs Helped Caregivers Manage Their Child's Asthma

Population Health Sciences

Date Posted:

Jun 29, 2023



Editor's Note: The components of this post in quotes are told from Jasmine's perspective.

"Walking into a family's home for the first time, you never know what to expect. Will they like me, will they allow me back in, is the family going to be receptive to the asthma education that I will soon provide? As I sit on the couch and begin to build a rapport with the caregiver, those earlier questions that flooded my mind start to diminish. As mom and I begin touring the home, I realize further interventions are needed that go beyond asthma education."

Did you know asthma is the most common chronic disease of childhood, affecting 4.7 million children in the United States? Despite clinically effective and readily available treatments, because of historical social and health inequities, Black and Hispanic children living in low-income, inner-city neighborhoods experience some of the highest rates of asthma morbidity and death In these areas, an estimated 20% of children have been diagnosed with asthma and Black children are more likely than White children to be hospitalized for asthma.

Aging housing stock and high poverty rates here in Philadelphia create substantial economic barriers to maintaining older homes, which can contribute to structural problems in housing that are associated with asthma triggers such as dust, mold and pests.

"Wall-to-wall carpet fills all bedrooms, and mom cannot afford a vacuum cleaner, so she sweeps to keep it clean. She further explains that after frying food, her daughter begins breathing heavily and coughing, but she is unable to ventilate the home because the windows are missing screens. The refrigerator has started to leak, causing damage to the kitchen floor. Pests have gained entry through the holes that have taken over the home's walls, and the roof has begun to cave in on their enclosed porch due to excessive water leaks and mold. The basement has moisture and mold build-up, so the family never uses it.

Mom begins to cry, as she knows her home is contributing to her child's asthma attacks, and she has no money to renovate. Suddenly, those trivial questions I had prior to coming into the home have fused into one significant inquiry: how can I assist this family with making their house a home again?"

An Opportunity to Address Asthma Disparities

Our team at Children's Hospital of Philadelphia saw an opportunity to design and implement a health system-led intervention to directly address disparities in asthma-related housing quality.

Expanding on the Community Asthma Prevention Program (CAPP), a longstanding asthma prevention program in West Philadelphia including asthma education and environment mitigation, we established CAPP+ to include major structural home repairs to reduce the presence of in-home asthma allergens. To implement this program, we identified two non-profit home repair agencies (HRAs), Rebuilding Together Philadelphia and the Philadelphia Housing Development Corporation, which shared CAPP+'s value of investing in low-income communities to improve health equity. The HRAs contributed extensive knowledge of home repairs and their associated costs, while our CAPP staff identified the sources of asthma triggers in the home. Homes enrolled in CAPP+ were then assessed for eligibility for pest management services, as well as other community programs to correct electrical, heating and plumbing issues.

"I begin explaining to mom that she may be eligible for the CAPP+ home repairs program, which could help with renovations that target asthma safety. Mom's sadness now changes to relief, as I assist her with completing the application. A few days later, the initial home repair inspection is completed, and the family is on their way to receiving qualified home improvements, which include a new roof, ventilation installation, wall repairs, mold and carpet removal, and more."

How CAPP+ Supported Families in Philadelphia

In a recent study published in *Pediatrics*, our team evaluated the success of this program, conducting interviews with CAPP+ program managers, community health workers, and medical directors, as well as HRA staff and hospital executive leadership. We also interviewed 20 homeowners enrolled in CAPP+.

We found that parents described improvements in their child's asthma following home repairs, including fewer asthma symptoms and less frequent need for emergency asthma relief medications, as well as quality-of-life improvements extending beyond their child's physical health. Additionally, CAPP+ participants expressed that the repairs:

- allowed families to use parts of the house they previously avoided due to asthma triggers
- contributed to a broader sense of well-being for many participants
- allowed them to remain in the home for longer than would otherwise have been possible

Community health workers were vital in nearly every step of the program, serving as trusted liaisons to homeowners or the caregivers receiving home repairs.

"Within a few weeks of enrolling the family into CAPP+'s asthma program, the family's home has completely transitioned. It is the day of the final home inspection, and mom could not be any happier. With tears in her eyes, mom has expressed how her child has been able to run and play around the house without her asthma being triggered, and how we helped the family love their home again.

Due to these home repairs, a child no longer inhales dust mites from their bedroom carpet. A mother no longer has to sweep her carpets clean because she cannot afford to purchase a vacuum cleaner. Families no longer have to place buckets throughout their home to capture water leaks, and no longer have to see black mold growing throughout their basements. These home repairs provide a sense of relief and restore caregivers' pride in their homes, all while providing clean air to support children with asthma."

We're proud to say that CAPP+ has repaired 160 homes to date. My team believes we have demonstrated that partnering with home repair agencies is feasible and a vital endeavor to improve health for all, especially for vulnerable children. We hope that these findings will motivate other health care institutions to invest in housing in their communities. When we repair homes, we address a basic need for healthy housing, which all children

deserve.

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