Meeting Highlights

INDOOR AIR QUALITY MEETING SERIES:
Housing Quality and Health

Thursday, Feb 29, 2023
10:00AM—11:30AM
Zoom Webinar

All presentations and related meeting materials are located on the HCTF website: https://www.dvrpc.org/Committees/HCTF/

Welcome and Introductions

Karen Cilurso, Associate Director of Livable Communities with the Delaware Valley Regional Planning Commission (DVRPC), opened the meeting by welcoming everyone. She then provided a brief overview of DVRPC and the Healthy Communities Task Force (HCTF). Karen explained that there are many different goals in DVRPC's Long Range Plan; however, most of the air quality goals pertain to outdoor air, as opposed to indoor. But indoor air is just as critical. Karen cited a statistic from the EPA that "Americans on average spend 90% of their time indoors, where the concentrations of pollutants are often 2 to 5 times higher than a typical outdoor concentration." She noted that indoor air quality and building quality are tied together. Factors such as materials, pests, and ventilation, can affect the air we breathe, and, in turn, our health.

Additionally, Karen noted that the burden of air pollution is not evenly shared, with low income and minority households typically experiencing the poor air quality. Children are especially vulnerable to the effects of poor air quality. Karen explained that it will take a multi-faceted and regional approach to begin to rectify the disparities we see.

Karen then welcomed our three speakers: Jo Miller, a Program Analyst in the U.S. Department of Housing and Urban Development's Office of Lead Hazard Control and Healthy Homes in Minneapolis, Minnesota, and Washington, DC; Dr. Bryant-Stephens, Medical Director and Founder of the Community Asthma Prevention Program (CAPP) and Chief Health Equity Officer of the Center for Health Equity at the Children's Hospital of Philadelphia; and Brandon Alcorn, Director of Operations at Rebuilding Together Philadelphia (RTP).

Dr. Tyra Bryant-Stephens, MD, Medical Director of the Community Asthma Prevention Program and Chief Health Equity Officer of the Center for Health Equity at Children's Hospital of Philadelphia

Dr. Bryant-Stephens began her presentation by introducing the Community Asthma Prevention Program (CAPP), which aims to increase asthma knowledge and improve self-management behavior, improve quality of life for children, and equip schools and community members to become asthma experts. Ultimately, CAPP's goal is to lessen the burden of asthma on underrepresented and minority populations.

Dr. Bryant-Stephens described the CAPP core home visit model. She noted that having community health workers who are part of the community serve as teachers and points of contacts for the families was critical. To be eligible for the program, a child in the house must have had one asthma-related hospital visit in the past 12 months and live in West and Southwest Philadelphia. Participating families receive supplies, like mouse traps or vacuums. With these strategies, the CAPP program has seen a 40 to 50 percent reduction in emergency room visits related to asthma, and 30 to 50 percent in patient visits depending on the study.

The CAPP+ program takes the improvements a step further than education and supplies, in that it aims to address the root cause. With the CAPP program, providers noticed that families were often left with difficult, structural issues, such as a leak in the ceiling. Families were very vocal about needing help to address these health-related issues. Because of this, the Children's Hospital of Philadelphia (CHOP) joined with Rebuilding Together Philadelphia to provide home repairs to eligible families through the CAPP+ program. This was supported by funds through CHOP's Healthy Together Initiative as well as philanthropic funds from Bank of America.

The CAPP+ program has a budget of about $15,000 per home. Repairs try to address asthma triggers like moisture and pests. The program is open to renters or homeowners; however, it is required that homeowners do not move for three years, and landlords must not raise the rent for three years. The process is usually as follows: referral, enrollment, home inspection, work scope, repairs, home inspection, repair completion. Rebuilding Together Philadelphia (RTP) does the repair completion and the final home inspections.

Dr. Bryant-Stephens provided some specific examples of common repairs in homes and shared photos. Examples used included replacing carpet with wood, installing thermostats, installing window a/c units, and installing kitchen cabinets. Dr. Bryant-Stephens then highlighted how complex addressing asthma is, and that low income, poverty, and social processes also largely contribute to this problem. She noted that CAPP also partners with the Enterprise Center to help support home stability with tools like financial counseling and job readiness training. Dr. Bryant-Stephens then passed the presentation to Brandon Alcorn, Director of Operations at RTP.

Brandon Alcorn, Director of Operations at Rebuilding Together Philadelphia

Brandon introduced himself, and shared that RTP has partnered with CAPP+ for seven years. RTP provides free home repairs for around 130 income eligible homeowners across the city each year, with approximately 40 funded through CHOP's CAPP+ program. He asserted that the CHOP collaboration is the "bread and butter" of what they do. He then went on to explain the CAPP+ process in more detail.

Community health workers are typically the first point of contact for families. An RTP program manager will inspect the home with a community health worker who knows the family. During the home inspections, RTP staff and community health workers will identify asthma triggers and other healthy housing factors. The program manager will draft the work scope and budget based on this information. They then go over this information line by line with the homeowner to make sure everything makes sense. Homeowners have a chance to decline suggested repairs or ask for other repairs (provided that they fall within the scope of the program).

Brandon then shared more information on how RTP approaches a home inspection for CAPP+. He began with the exterior of the house, and emphasized the need for a watertight roof. He also explained that they do a lot of work in kitchens and bathrooms, to make sure that there aren't any plumbing leaks as mold from excessive moisture can exacerbate asthma Additionally, adequate food storage is important to prevent pests. Gas stoves can be a major asthma trigger, so RTP focuses on ensuring adequate ventilation.

Brandon explained that RTP also focuses on the children's bedrooms. RTP will repaint walls, install window ac units, and remove carpeting and replace it with vinyl flooring. The basement is another important spot due to issues with excessive moisture. Although it is not always a permanent solution, RTP will add humidifiers to help control the moisture. RTP will also ensure that the dryer is ventilated properly.

Brandon explained that RTP's work often goes beyond the asthma-related repairs funded through the CAPP+ as many of the homes have other or larger problems, such as electrical problems, that also need to be addressed. RTP works to find other funding to be able to address issues that fall outside of the CAPP+ scope of work. Additionally, Brandon noted that they will always address an issue if it is a serious safety hazard.

Brandon noted that through the CAPP+ program, RTP has been able to build strong relationships with contractors. 75 percent of the work is done by minority and women-owned contractors.

Brandon then presented some challenges RTP faces. He noted that initially they had some challenges with contractors either not completing the work or not performing the task to the standard expected. They have worked through that process and have now found reliable contractors. Additionally, Brandon noted that there can be challenges with reaching renters and managing the tenant-landlord relationships

Dr. Bryant-Stephens then shared the research that CHOP has done on the CAPP/CAPP+ model (Link). She explained that the team saw a significant reduction in pests, and also 80 to 90 percent reduction in hospitalizations and emergency room visits. Parents self-reported that they had fewer school and work -related absences, as well.

An early study of 50 homes analyzed PM2.5 and PM10 levels over 24 hours to compare before and after. Dr. Bryant-Stephens explained that there was a reduction, but the PM data doesn't tell the whole story. In the future, those working on the study hope to also examine how seasonality factors in, and compare the effect of different types of home repair methods. Dr. Bryant-Stephens then presented pre- and post-intervention health care utilization data for children enrolled in the various levels of the CAPP program. The data showed that the emergency room visits decreased after CAPP, with an even larger decrease after participating in CAPP+.

Dr. Bryant-Stephens concluded her presentation by noting that community health workers are essential for this work and by thanking all of the community health workers in the CAPP program.

Jo Miller, Program Analyst, U.S. Department of Housing and Urban Development's Office of Lead Hazard Control and Healthy Homes

Jo began her presentation by explaining that the Office of Lead Hazard Control and Healthy Homes (OLHCHH) focuses on strengthening climate resilience, energy efficiency, environmental justice, and healthy homes to advance sustainable communities. The office provides grants for producing healthy, lead-free homes.

Jo then explained that there are eight healthy home principles:

- Keep it Dry
- Keep it Clean
- Keep it Safe
- Keep it Well-Ventilated
- Keep it Pest-free
- Keep it Contaminant-free
- Keep your home Maintained
- Thermally Controlled

Newer initiatives have focused on climate resilience, climate action plans, and decarbonization. Her office is helping HUD and policymakers look at these issues, and helping to invest in low-income households facing environmental hazards.

Jo shared that the office has been around for 25 years. She then shared information on some of the grants available through OLHCHH, including funding for government agencies, technical studies, and home modifications. The healthy house grant specifically addresses housing-related hazards that affect childhood diseases and injuries in the home, including mold, lead, allergens, asthma, carbon dioxide, home safety, pesticides, and radon. Jo also noted that they do work to help governments build capacity, with three-year grants that are flexible and hold much promise. This gives entities the opportunity to do things like train community health workers and support minority- or women-owned contractors.

Jo responded to a question in the Q&A about smoking, and said that smoking cessation programs and smoke-free housing came out of studies from their office. To close out, Jo directed everyone to the HUD website for more resources and the meeting was passed to Amy, to begin the panel.

Q&A

Moderated by Amy Verbofsky, Manager of Healthy and Resilient Communities

1. **"I'm [an attendee] a little surprised to find that the one metric that didn't improve drastically is the reduction in mold growth post-repair. It's great that there's been a reduction in pest presence, but I wonder what else you might be trying to move the marker a little more since mold is such a critical reason behind the repairs and program."**

Dr. Bryant-Stephens noted that those results were based on parent-reported data from their first 30 homes, so it wasn't a direct sampling of the indoor air quality. She noted that they were very happy to see a reduction in relative humidity in later, larger studies, since humidity is what really produces mold.

Brandon added that mold can be hard to track in parent-reported data. He noted that pests like mice and cockroaches or even calcification on basement walls from water are very easy for parents to identify; however, identifying mold can be challenging. He noted that he has had conversations with families about mold, where mold grows, and how to get rid of mold, but reiterated that homeowner reported measurements of mold might be more challenging.

2. **The installation of air conditioning and other cooling strategies address asthma triggers, but how do high heat events play into the work you're doing?**

Brandon noted that heat is important to bring up, and as more high heat events occur and Philadelphia's climate changes, residents will need to be prepared. He added that most homes during the summers have window air conditioning in one way or another, though not across the board, such as when people are rationing them. When the air conditioner is not present in the child's room, Brandon explained that RTP will install the window air conditioner for them.

He added that he thinks that there are opportunities to explore different approaches as IRA funds roll out, such as looking into what more significant cooling investments would look like, and whether heat pump technology or mini split technology (that can do heating and cooling) would be better. Brandon highlighted that so far, those things have been cost prohibitive for RTP, and added that there might be some opportunities for more affordable central air but conversion can be relatively expensive. He noted that about 50 percent of RTP homes have radiant heat with boilers, so central hvac would not make sense. Brandon concluded by adding that RTP hopes to explore this further in the future.

Jo answered by explaining that HUD has a new memorandum of understanding with the Department of Energy (DOE), with a historic amount of funding to address heating and cooling. She asserted that the only way that the program will be successful is to make sure that they can get into homes. Often, electrical and lead problems must be fixed before weatherization work can happen. In the weatherization step, air conditioning can be installed.

Jo also noted that she has toured one of the DOE Labs, and they are working on some great alternatives. She also added that heat pump technology can work in some places, depending on the season and climate and that the healthy house program can potentially fill gaps. To conclude, Jo highlighted that nonprofit organizations are eligible to apply for our healthy home grant program.

3. **Are there ways folks can be referred to other services for home repairs or to get help with other needs that can't be addressed by CAPP+?**

Dr. Bryant-Stephens explained that if there are basic systems needs that the program can't address, CAPP will assist the homeowner in applying to the PHDC's Basic Systems Repair Program, which can offer electrical repairs for hazards, though not heater replacements. Dr. Bryant-Stephens added that the application is pretty straightforward, and then when possible, CAPP tries to bring in other resources to help. An example is funding received for Aging in Place repairs.

Brandon added that RTP won't leave a house with a major hazard, especially life safety issues such as an imminent electrical hazard or unvented carbon monoxide. He explained that they will figure it out, even if it is just the RTP construction staff fixing it. Many options exist.

4. Are there other ways that you're pairing these families with other kinds of health interventions? Does smoking cessation play a role?

Dr. Bryant Stephens explained that their focus is on children, and that asthma is by far the most common disease, 45 times more than any kind of lead toxicity. Her team does, however, look at social needs and know that most health outcomes are driven by social needs. They screen for food insecurity, transportation, housing, and financial security. Dr. Bryant-Stephens explained that when an applicant needs help with applying for benefits, CAPP has a medical financial partnership. If there's a tenant legal issue, the medical legal partnership provides support. If there's a food issue, a food pharmacy exists to help that need. CAPP delivers food to the families for 6 months, and they can get free produce and dry goods through the Center for Equity. CAPP hopes to have a community mobile food center soon.

Dr. Bryant-Stephens also added that CAPP has a smoking cessation program at the clinic, where parents can get nicotine replacement prescriptions as well as smoking cessation counseling. Dr. Bryant-Stephens added that if visitors are in the community but not a patient at CHOP, they do share EPA strategies for reducing smoking in the homes, making smoke-free zones/homes for the children, as well as referring them to the state resources.

5. Are there other similar organizations doing this work?

Dr. Bryant-Stephens answered by saying she was not aware of similar programs, though they may exist. She explained that CAPP is having conversations with folks around the country to learn more, and are happy to share.

6. Do air filters play a role in home air improvement?

Dr. Bryant-Stephens explained that she is not convinced about the data on air purifiers and asthma. She explained that according to a meta-analysis of all the current data on air purifiers and where air purifiers appear, that they mainly help with pet dander more than anything else. Dr. Bryant-Stephens added that there's nothing wrong with them, but that she doesn't buy too many.

Jo answered by sharing that the National Center for Healthy Homes, a HUD LED technical studies grantee, conducted a study in collaboration with partners including the University of California and the University of Chicago, Illinois, focusing on indoor air quality related to stoves. She explained that their research, which is currently being published, highlights the significance of ventilation in addressing particulate matter, particularly concerning its impact on children. She added that filters might not address the particulate matter, but they can help with triggers, such as particulate matter from when you burn a candle, or use a gas stove or furnace. All of these increase asthma, so filters can help. She explained that the research is new but ventilation and reducing the amount of particulate matter you create in your home to begin with, can be very helpful.

Brandon added that the RTP definitely does furnace filters and furnace duct sealing. He explained that dust often gets pulled into your air filtration system, and added there are a number of other solutions to consider to help reduce this that are low cost. For example, one low cost and high impact step is educating residents where their furnace filter is and how to access it to change it every few months in the winter.

Closing

Amy thanked everyone for their presentations, and for a good discussion and passed the meeting to Mel. Mel thanked everyone for joining, and informed the attendees to keep an eye out for details on another air quality meeting, and to visit the DVRPC website to keep up to date with other events. She also encouraged everyone to fill out the post meeting survey and pointed out the AICP number posted on the screen for logging credits. The meeting then concluded at 11:30am.