North Carolina Forum on Sustainable In-Home Asthma Management
September 13, 2016
Summary Report

The North Carolina Forum on Sustainable In-Home Asthma Management brought together a wide variety of participants from across North Carolina and neighboring states. Attendees learned from expert presenters and participated in a series of group discussions designed to further advance the dialogue of coordinated asthma care and reimbursement for in-home asthma interventions in North Carolina. This report is provided as an overview of the day and captures the main points and themes from each session and presentation.

Fast Facts

Lead Organizers:	Office of Lead Hazard Control and Healthy Homes (OLHCHH), U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency, Centers for Disease Control and Prevention, North Carolina Department of Health and Human Services, Penngood and the Asthma Alliance of North Carolina.
Contact:	Sally Herndon of the North Carolina Department of Health and Human Services
Location of Meeting:	William Friday Center in Chapel Hill, NC
Meeting Time:	9:00 a.m. – 4:00 p.m. (registration 8:00 a.m. – 9:00 a.m.)
Number Attended:	59
Agenda:	See Appendix A
Meeting Materials:	Handouts included the agenda, action guide, 6-18 fact sheet, GHHC fact sheet, GDPH fact sheet, Pathways to Medicaid Reimbursement document, and AsthmaCommunityNetwork.org flier.

Summary Report Contents

I. Overview 3
- Why this Forum?
- The Context
- Overview of the day

II. Highlights of Presentations 6
- Welcome Remarks
- Federal Initiatives and Perspectives for Collaboration and Promotion of Home Interventions for Pediatric Asthma
- North Carolina – State of the State and Open Discussion
- Healthcare Financing of Home-based Asthma Services
- Panel: Pilot Programs and Perspectives on Sustainable Asthma Management Models and Open Discussion
- Small Group Discussions: Future Directions and Priorities
- Open Discussion: Reflections on the Day and Closing Remarks

III. Appendices 20
- Agenda
- List of Participants

I. Overview

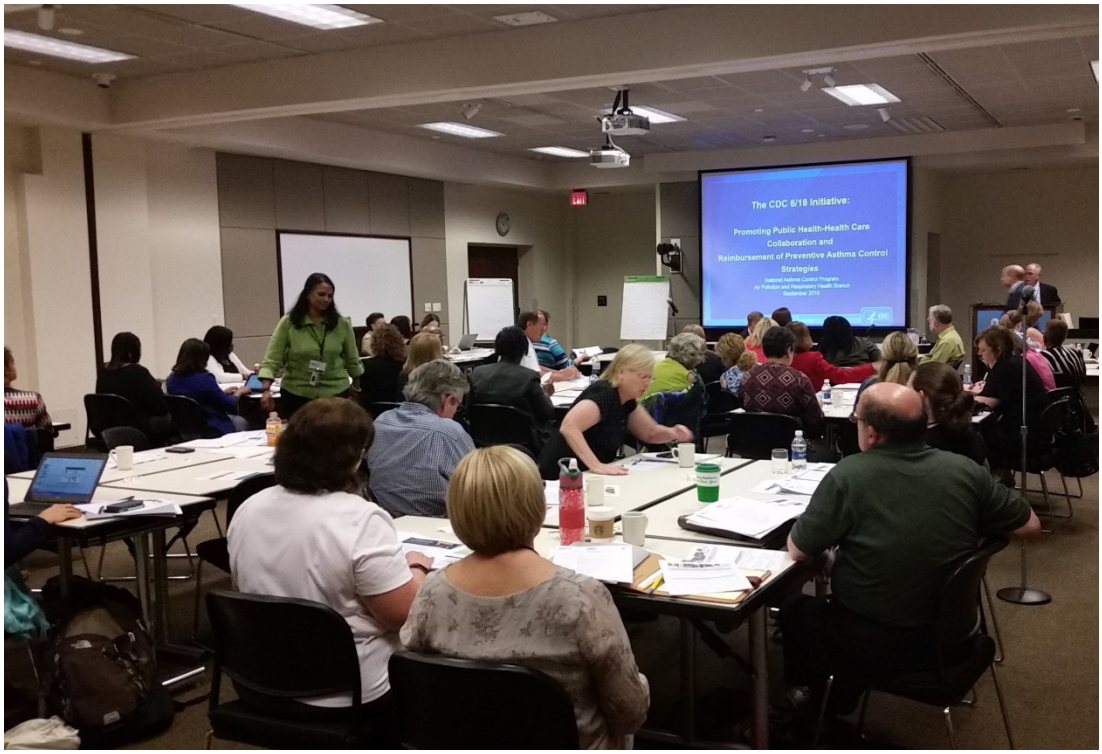
a. Why this Forum?

The North Carolina Forum on Sustainable In-Home Asthma Management was the ninth in a series of local meetings supported by the U.S. Department of Housing and Urban Development (HUD) in collaboration with the U.S. Department of Health and Human Services (HHS), the U.S. Environmental Protection Agency (EPA), and the Centers for Disease Control and Prevention (CDC). The first meeting occurred in October 2012 in Cleveland, Ohio.

The Forum was designed to meet the following desired outcomes, that participants would:

- Understand the health benefits and cost-effectiveness of in-home education, environmental assessments and interventions, especially for children with poorly controlled asthma;
- Gain knowledge about successful evidence based in-home assessment models with varied capacity;
- Develop strategies to engage critical stakeholders; and
- Leverage the evidence and business cases necessary to secure sustainable financing.

The Forum was coordinated locally by the Office of Lead Hazard Control and Healthy Homes (OLHCHH), U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency, Centers for Disease Control and Prevention, North Carolina Department of Health and Human Services, Penngood, the University of North Carolina, and the Asthma Alliance of North Carolina.



Participants gather for the opening of the Forum.

b. The Context

Seeking Reimbursement for Asthma Interventions

Reimbursement for in-home asthma interventions has been the "brass ring" for asthma advocates and public health practitioners for a long time. To address racial and ethnic disparities in asthma, the barriers to asthma control need to be tackled comprehensively, and the different elements of asthma management need to be given equal attention. For nearly a decade, the EPR-3 Guidelines for the Diagnosis and Management of Asthma adopted by the National Heart, Lung and Blood Institute's National Asthma Control Program have promoted four main components of care: (1) assessment and monitoring; (2) education for a partnership in care; (3) control of environmental factors and comorbid conditions that affect asthma and (4) medications.

In 2008, The Community Guide for Preventive Services recommended home-based multi-trigger, multi-component asthma interventions for children and adolescents, and it provided economic cost-benefit analyses demonstrating that these interventions, combined with asthma education, "provide good value for the money."[1] Yet in the ensuing years, only a few private insurers and Medicaid plans serving high-risk asthma patients expanded coverage to include home-based asthma education and non-structural housing remediation such as pest control, moisture control, mattress and pillow covers, and HEPA vacuums.

With changes led by the Affordable Care Act, we are in the midst of a welcome sea change in our approach to health care. Providers and health plans recognize that poorly managed asthma care can lead to increased costs in urgent care, emergency department (ED) visits, hospitalizations and readmissions within 30 days. Health plans and Medicaid are moving from a fee-for-service model to a health outcomes model in which accountable care organizations share responsibility for quality, cost and care of large patient populations.

With bundled payments, providers operate with a fixed amount of funds, figuring out the best and most cost-effective ways to address the needs of high-risk patients. To allow for the reimbursement of non-traditional health care workers (e.g., community health promoters), in January 2014 the Centers for Medicaid and Medicare changed their rules to allow providers without a clinical license to deliver services prescribed by a licensed medical provider. This opened the door to payment for asthma education and home visits (which include environmental assessment and mitigation) that were not previously covered.

The opportunity to improve health outcomes and reduce health care utilization for high-risk asthma patients has piqued policymakers' and health plans' interest. A high-risk patient is a patient with greater potential for hospitalization and/or emergency room visits due to their enhanced exposure to asthmatic triggers, lack of education and/or failure to manage asthmatic conditions properly. There is sufficient evidence for the value of in-home asthma care services and for program models that employ community health promoters or other similar positions, such as asthma navigators. [2,3] The puzzle pieces for reimbursement for in-home asthma interventions are there; now is the time to put them into place.

---

[1] The Guide to Community Preventive Services. *Asthma Control: Home-Based Multi-Trigger, Multicomponent Environmental Interventions. Task Force Finding and Rationale Statement Interventions for Children and Adolescents with Asthma*. Review completed June 2008. Accessed online July 2, 2015.

[2] Tyra Bryant-Stephens et al., "Impact of a Household Environmental Intervention Delivered by Lay Health Workers on Asthma Symptom Control in Urban, Disadvantaged Children With Asthma," *American Journal of Public Health* 99, no. 3 (2009): S657–S665, doi: 10.2105/AJPH.2009.165423.

[3] James Krieger, "Home Is Where the Triggers Are: Increasing Asthma Control by Improving the Home Environment." *Pediatric Allergy, Immunology, and Pulmonology* 23, no. 2 (2010): 139-45. doi:10.1089/ped.2010.0022.

Healthy Homes and Asthma

One of HUD's strategic goals is to use housing as a platform for improving quality of life. Unhealthy housing conditions are associated with lead poisoning, injuries, uncontrolled asthma and other health issues. These health problems result in missed school days and poor school performance for children and missed work days for parents. The same houses that have pest infestation, moisture, mold and lead-based paint hazards house high-risk asthma patients and residents who cannot afford to move or fix these problems.

Like CDC, HHS, EPA and other federal agencies committed to reducing asthma disparities, HUD understands that its role is also to improve public health. The Asthma Disparities Action Plan (ADAP) provides a framework and common mission for federal agencies to accelerate actions that will reduce asthma disparities. ADAP focuses on preventable factors that contribute to disparities in the burden of asthma, such as barriers to the implementation of guidelines-based asthma care, lack of local capacity to deliver care, and gaps in capacity to identify and reach children most at risk for asthma.

Through the Asthma Summits, HUD encourages asthma advocates to understand and utilize all available levers for financing in-home asthma interventions— from healthcare reimbursement to housing rehabilitation funds. This Forum offered opportunities to learn about the current policies that exist for in-home asthma management in North Carolina, and to motivate participants toward action.

c. Overview of the Day

The day began with remarks from Sally Herndon from the North Carolina Department of Health and Human Services. Sally welcomed attendees and stressed the importance of continuing work on evidence based asthma interventions.

Annie Hirsch of the North Carolina Department of Health and Human Services then provided an overview of the data around asthma in North Carolina.

After the welcoming remarks, federal officials representing HUD, CDC, and EPA discussed the ongoing federal initiatives and perspectives for collaboration and promotion of home interventions for pediatric asthma. Serving on this panel were Peter Ashley (HUD), Paul Garbe (CDC) and Heidi LeSane (EPA).

Neasha Graves (UNC Chapel Hill Institute for the Environment) then moderated a panel discussion on asthma programs and efforts underway throughout North Carolina. Each region was represented. Greg Kearney (East Carolina University, Brady School of Medicine, Department of Public Health) and Theresa Blount (Vidant Medical Center) represented the Eastern portion of North Carolina, with Melina Shuler (Mission Children's Hospital) representing the West. Betsey Tilson (Community Care of Wake and Johnson Counties) represented the center part of North Carolina.

The group then attended a working lunch session, where they focused on four main themes:

1. **Getting Paid –** Workgroup on Sustainable financing for in-home interventions in this era of health care reform in North Carolina.

2. **Getting Connected –** Coalitions, People and Partnerships. What groups have overlapping interests that can help broaden the support?

3. **Getting Smart-** About Evidence Based Asthma Interventions – Sharing Information, Resources and Support about what works and how it is best implemented in order to scale up and spread evidence-based asthma interventions in the home.

4. **Getting Seen and Heard –** Sharing information about what works with a broader circle of decision-makers. What are the economic impacts of evidence based programs? What are the stories of real people that communicate the human face of in-home?

Amanda Reddy (National Center for Healthy Housing) lead off the afternoon discussion with a presentation on health care financing of home-based asthma services. Her presentation shared information about new National Center for Healthy Housing initiatives and also discussed the results of a nationwide survey that was conducted by the National Center for Healthy housing to understand the rapidly evolving landscape of home-based asthma services, and described some of the various mechanisms for coverage.

After her presentation, Amanda moderated a panel examining pilot programs and perspectives on sustainable asthma management models. This panel included Stacey Chacker (Health Resources in Action), Francis Martini (Blue Cross Blue Shield Tennessee) and a remote presentation by Sally Szumlas (Family Health Network) and Julie Kuhn (Sinai Urban Health Institute). This panel discussion shared information on identifying and replicating best practices from successful model programs, including how these programs were developed and the necessary components/partnerships. In addition, speakers described the health and environmental outcomes that merit the need for in-home interventions. They explained the value propositions, ROIs and business cases that support the delivery of in-home interventions and surfaced new strategies for incorporating in-home intervations into existing programs.

Following this panel, the group engaged in an open discussion period to identify opportunities and develop next steps. The day was closed out with remarks from Sally Herndon and Peter Ashley.

II. Highlights of Presentations

The following summaries provide highlights of the day and feature remarks made by presenters.

a. Welcome Remarks

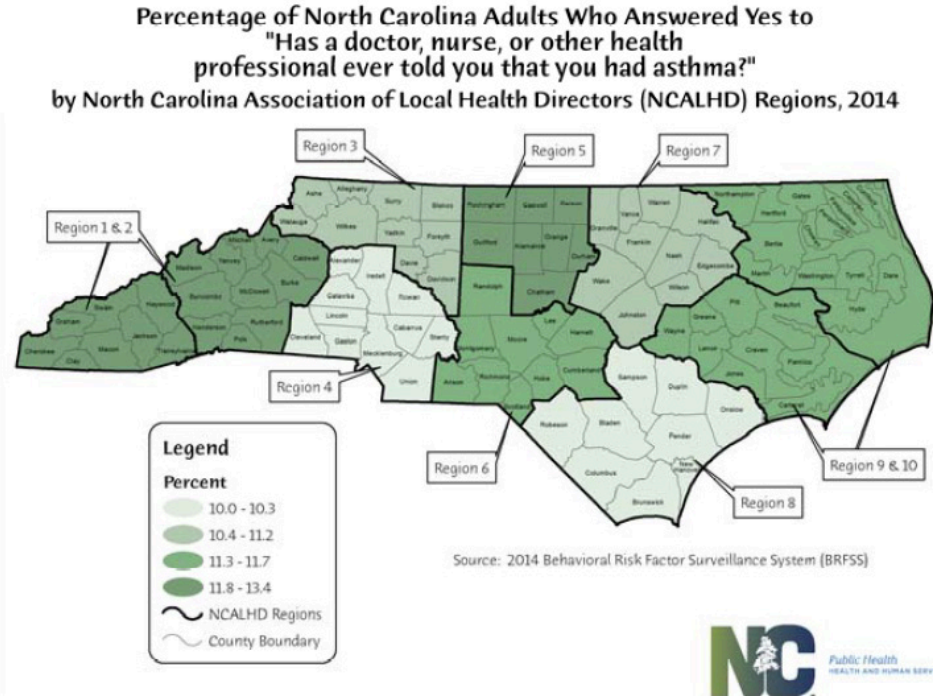
Sally Herndon and Annie Hirsch, North Carolina Department of Health and Human Services
Sally thanked attendees for participating in today's event and provided an overview of the interworking of the North Carolina Asthma Alliance. The Alliance brings together multidisciplinary professionals to examine asthma interventions, evidence and outcomes. The work of the Asthma Alliance will be continuing, with renewed vigor after today's meeting.

Next, Annie Hirsch provided an overview of asthma data in North Carolina, based upon data from the State Center for Health Statistics. Asthma is common in adults in North Carolina, however it is more common among children in North Carolina. Below is detailed information from Annie's presentation.

Asthma Overview

In terms of comparing North Carolina to the rest of the nation, based upon data from 2014, North Carolina was lower among both current asthma (7.8% versus 8.9%) and among lifetime asthma (11.5% versus 13.5%). While North Carolina, as a whole, is lower than the national average, there was disparity seen throughout North

Carolina, based on geographic region. In addition, females (9.7) were more likely than males (5.6) to have asthma in North Carolina.



Asthma Hospitalizations and Emergency Room Visits

Annie also provided an overview of the impact of asthma on hospitalizations within North Carolina. Data from the North Carolina State Center for Health Statistics, shows a decrease in the primary diagnosis of asthma over the last ten years. The rate has decreased approximately 30 percent for all ages, and 12 percent for children. In 2014, there were nearly 20,000 emergency department visits for asthma among children aged 0 to 14. This equates to nearly 54 children going to the emergency department every day for asthma. When looking at all age groups, the number jumps to 160 individuals visiting the emergency department every day.

2014 NC Resident Inpatient Hospitalizations with A Primary Diagnosis of Asthma

Total Hospital Discharges	9,035
Discharge Rate per 100,000 Population	90.9
Average Length of Stay (in days)	3.2
Total Charges	$139,306,354
Average Charge per Day	$4,872
Average Charge per Hospitalization	$15,420

Source: North Carolina State Center for Health Statistics, Inpatient Hospital Discharge Data

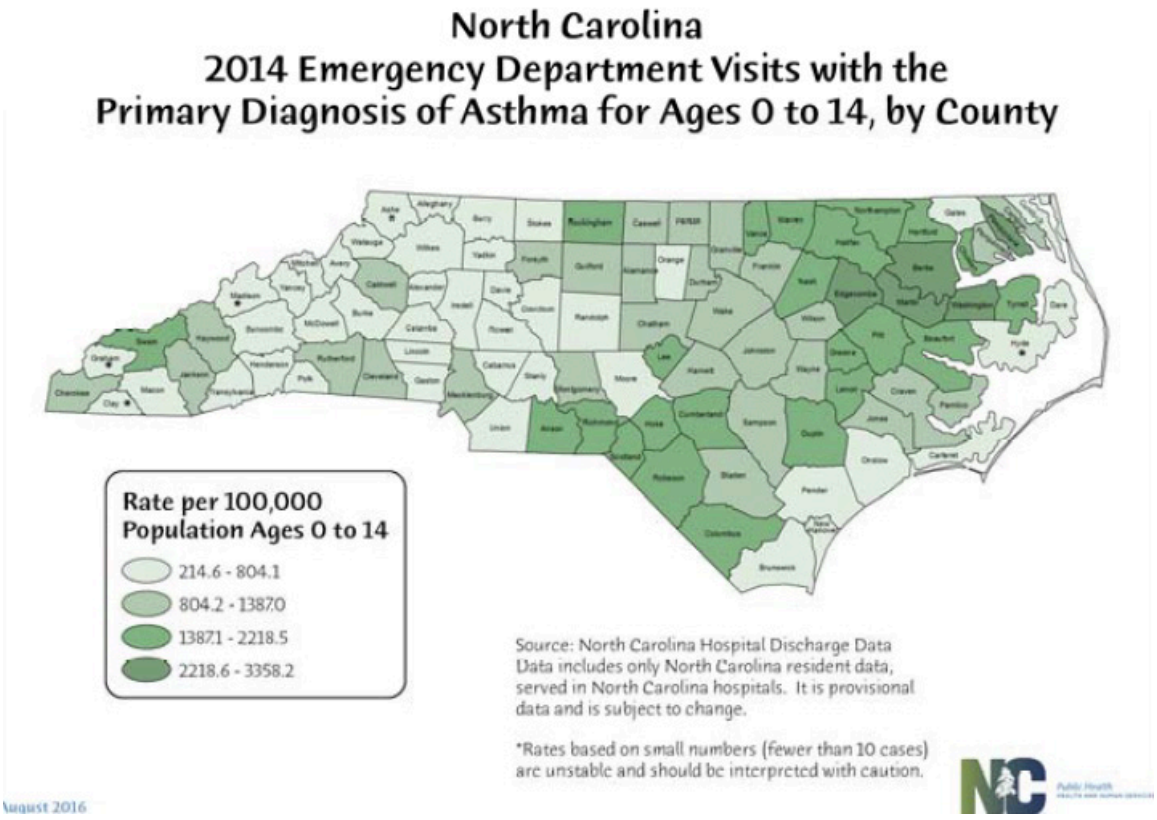
2014 NC Emergency Visits for Asthma (as a Primary Diagnosis) by Age Group

Age Group	# ER Visits	Rate per 10,000
0-14	19,762	103.8
15-44	22,854	119.8
45-64	11,642	44.6
65+	3,958	28.2
Total	58,216	58.5

Source: North Carolina State Center for Health Statistics, Emergency Department Data

Asthma and Children in North Carolina

Annie presented data from the Child Health Assessment Monitoring Program (Champ). The data show that African American children had a higher prevalence of asthma than other ethnic groups (28.1% for African American children, compared to 14.4% for white and 8.5% for Hispanic children). Asthma was also the most commonly reported chronic condition among public school children. According to the North Carolina Annual School Health Services Report, asthma was reported in 93,106 children, with ADD/ADHD coming in second at 57,020.



b. Federal Initiatives and Perspectives for Collaboration and Promotion of Home Interventions for Pediatric Asthma

Peter Ashley, DrPH, Director, Policy and Standards Division, Office of Lead Hazard Control and Healthy Homes, U.S. Department of Housing and Urban Development detailed the link between asthma and healthy homes. In particular, sub-standard housing poses the greatest risk. Housing that contains mold, moisture, indoor air quality, and/or pests, can all be asthma triggers. Peter also pointed out that homes with moderate or severe physical problems have a strong correlation with income level.

The National Asthma Education and Prevention Program (EPR 3/NHLBI Guidelines), contains valuable information on the diagnosis and management of asthma.

NAEPP explains the four key components of comprehensive asthma care:

1. Assess and monitor asthma severity and patient ability to manage and control.
2. Educate to improve self-management skills of the patient and their family.
3. Reduce environmental exposures that worsen asthma.
4. Use appropriate medications.

Peter than gave an overview of the federal approach towards coordinated action related to asthma. In 2012, a Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities was launched by the President's Task Force on Environmental Health Risks and Safety Risks to Children. The focus of the plan is on preventable factors that contribute to disparities in the burden of asthma. Peter detailed the priority actions of this plan, and detailed how the Federal agencies are taking part in various activities as to implement the plan. Their vision is aligned in their commitment towards reducing asthma disparities.

Peter also provided an overview of the publication, Change is in the Air, an action guide for establishing smoke-free public housing and multifamily properties. The action guide provides detail on implementing a smoke-free policy and also contains a summary of interviews that were conducted with nine multifamily housing managers who have implemented smoke-free policies.

Another resource is the Northeastern IPM Center at Cornell University. The Center focuses on integrated pest management (IPM) and is supported by HUD. The Center provides technical assistance and training, which can be requested on the website – stoppests.org

Peter closed his remarks by reiterating the importance of examining ways to further integrate home interventions into part of an overall health care plan.

Paul Garbe, DVM, MPH serves as the Chief, Air Pollution and Respiratory Health Branch, Division of Environmental Hazards and Health Effects at the National Center for Environmental Health, CDC

Paul began his remarks by discussing the strategic objectives of CDC, which include:

- Improve health safety at home and around the world;
- Better prevent the leading causes of illness, injury, disability and death; and
- Strengthen public health and health care collaboration.

Asthma's impact on the nation was discussed next. More than 22 million individuals are affected by asthma at a cost of $63 billion annually. One of the ways that CDC is examining ways to control costs and reduce asthma is through the 6|18 Initiative. In this initiative, CDC is partnering with health care purchasers, payers, and providers to improve health and control health care costs. CDC provides these partners with rigorous evidence about high-burden health conditions and associated interventions to inform their decisions to have the greatest health and cost impact. This initiative offers proven interventions that prevent chronic and infectious diseases by increasing their coverage, access, utilization and quality. Additionally, it aligns evidence-based preventive practices with emerging value-based payment and delivery models.

In 6|18, CDC is targeting six common and costly health conditions – tobacco use, high blood pressure, healthcare-associated infections, asthma, unintended pregnancies, and diabetes – and 18 proven specific interventions that formed the starting point of discussions with purchasers, payers, and providers.

Paul stated that asthma is a prime target for further exploration. Comprehensive asthma control strategies can reduce emergency department visits by as much as 68 percent and hospitalizations by 85 percent, showing a short-term positive return on investment. In some cases, return on investment has varied between $5 to $15 for every dollar invested.

The Guide to Community Preventive Services, conducts systematic reviews of the evidence for community interventions, and conducted a review of home-based, multi-trigger, multi-component interventions with an environmental focus to improve asthma control in children and adolescents.

Paul also discussed the National Governors Association's Paper Health Investments that Pay Off: Strategies for Addressing Asthma in Children. This paper explores ways that governors can improve health outcomes among children and reduce medical expenses, by incorporating those interventions into their overall agenda for state health care transformation.

For additional information about CDC's Asthma Program, visit: http://www.cdc.gov/asthma/

Heidi LeSane, Community Support Section, U.S. Environmental Protection Agency

Heidi discussed EPA's role in asthma reduction, which largely falls into two buckets: Influencing stakeholders and equipping stakeholders to act. The EPA has also been examining asthma as an environmental justice issue. The likelihood that a low-income, minority child has a heightened risk for asthma and a heightened suffering. She noted that Asthma related deaths take place in black children at a rate four times higher than their counterparts. The Environmental Protection Agency is dedicated to coming up with holistic solutions to address the housing and chronic disease issues that impact children and the populations that they serve.

Heidi also discussed the Asthma Community Network, an online community of practice, with nearly 1,000 programs across the country that are part of the Asthma Community Network. The Network is a clearinghouse of resources and has a myriad tools and webinars. The Network is designed for community-based asthma programs and organizations that sponsor them — including representatives of health plans and providers, government health and environmental agencies, nonprofits, coalitions, schools and more. More information is available at: http://www.asthmacommunitynetwork.org/

c. North Carolina State of the State

Neasha Graves served as the moderator for the State of the State panel. Neasha serves as the community outreach and education manager for the UNC Institute for the Environment's Environmental Resource Program, where she coordinates environmental health outreach programming aimed at helping the public understand environmental health issues like asthma. Through a contract with the NC Department of Health and Human Services, she also serves as outreach coordinator for the NC Childhood Lead Poisoning Prevention Program, with a focus on educating health and housing professionals and community audiences about lead and healthy homes.

The panel focused on intervention strategies, sources of support, how programs are impacting asthma management, emergency department visits, hospitalizations and return on investment. Where possible, presenters also shared thoughts on how to gain financial sustainability and lessons learned.

Greg Kearney, DrPH, MPH, RS, East Carolina University, Brody School of Medicine, Department of Public Health and Theresa Blount, RN, BSN, AE-C Vidant Medical Center

Greg is a native North Carolinian and an assistant professor with the Department of Public Health, Brody School of Medicine at East Carolina University, where he teaches graduate level epidemiology and environmental health courses. He is co-founder and director for the Eastern Carolina Asthma Prevention Program (or ECAPP), a collaborative partnership between East Carolina University, Brody School of Medicine and Vidant Medical Center, Pediatric Asthma Program.

Greg and Theresa presented an overview of ECAPP, which was developed as a community based, collaborative research project in 2012 between an environmental public health professor at East Carolina University and the pediatric asthma program at Vidant Medical Center in Greenville, N.C. The program's goal is to reduce asthma and asthma symptoms among rural, low income families that have children with moderate to severe asthma (aged 5-17 years) in Eastern North Carolina.

The program was developed based upon the King County, Washington Model, which uses multi-component intervention strategies. To date, around 50 homes have been evaluated. The program has received funding from a variety of sources, including:

- East Carolina University (Community Partnership) - $8,000 – Develop Program (ECAPP)
- Vidant Medical Center, Edgecombe - $9,500 – Asthma Interventions
- Vidant Medical Center - Pitt - $5,000 – Asthma Interventions
- Brody School of Medicine - $43,500 - Indoor Air Testing, Personal Monitors, Bio-markers (N=25)

The program has had success; it has reduced emergency room visits and unscheduled doctor office visits. It has also increased medication compliance. The cost of the program averaged $440-$500 per family, which included two scheduled home visits and cleaning products.

In terms of challenges, it was noted that behavioral change can take time. Interventions such as implementing proper housekeeping, cleaning and washing techniques may require several follow up visits to ensure compliance. Also, for some, ensuring routine access to hot water was a challenge. They also recognized that in some cases it was difficult to pressure the landlord to make needed repairs, as the landlord would then want to increase rent to recoup the money spent on maintenance. This was true in many cases, as the majority of program participants were renters.

Melinda Shuler, BSBA, RCP, NDC, HHS, AE-C, Mission Children's Hospital

Melinda discussed the regional asthma disease management program at Mission Children's Hospital. Mission Children's Hospital Regional Asthma Disease Management Program was designed to address health disparities in underserved and impoverished children suffering from asthma who live in rural western North Carolina.

The program began in 2001 and is now one of 13 programs funded as a national asthma demonstration site by the National Heart, Lung and Blood Institute (NHLBI). In 2012, Mission was the winner of the Environmental Protection Agency's National Environmental Leadership Award in Asthma Management.

The program is located in Asheville, North Carolina and is run out of a non-profit community health system. The program serves 21 counties in Western North Carolina, including the Eastern Band of the Cherokee Indians and serves individuals in remote, rural, urban, Latino and Slavic communities. The typical patient that this program services averages 8 years of age, living in a single parent home. One out of every four children in Western North Carolina lives in poverty and the majority are uninsured or underinsured.

The program works with a wide variety of community partners, including faith-based organizations. Once enrolled in the program, each patient is seen every 8-12 weeks. Patients receive education and individually written asthma action plans. The program also conducts environmental assessments at child care facilities, schools and home.

For the NHLBI NACI study, Mission provided asthma disease management and environmental home assessments to 50 children, resulting in overall improvements in their quality of life, school absences, emergency department and hospital utilization, and lung function. Mission staff completed an extensive series of educational workshops and environmental assessments for childcare centers serving rural and Cherokee Indian populations throughout Western North Carolina. Based on data from 2009-2011, 50 children were enrolled in the program. Statistically significant improvements in all areas were found. Data from the study appears below and additional information can be found in the Journal of Asthma:

NACI ASTHMA GRANT DIAGNOSTICS AND COST ANALYSIS

	12 Months Prior to Intervention	24 Months Post	24 Months Cost

			Intervention	Avoidance
	ED Utilization			
	Total Visits	158	9	
IMPACT	Total Costs	$ 150, 583	$ 8,577	$ 142,006
HOSPITALIZATION/				
ED	Hospitalizations			
	Total Hospitalizations	60	3	
	Total Charges	$ 723,660	$ 36,183	$ 687,477
	Total			
				$745,067.92
QUALITY OF LIFE	School Absences			
	Average missed days	17	9	10**
	MEASUREMENT	BASELINE***	POST	Avg. Improvement
CLINICAL	FVC	95.2	102.5	7.2**
OUTCOMES	FEV1	85.6	98.7	13.1**
	FEF25-75	67.5	88.4	21.1**
	FeNO	23.9	21.1	3.4**

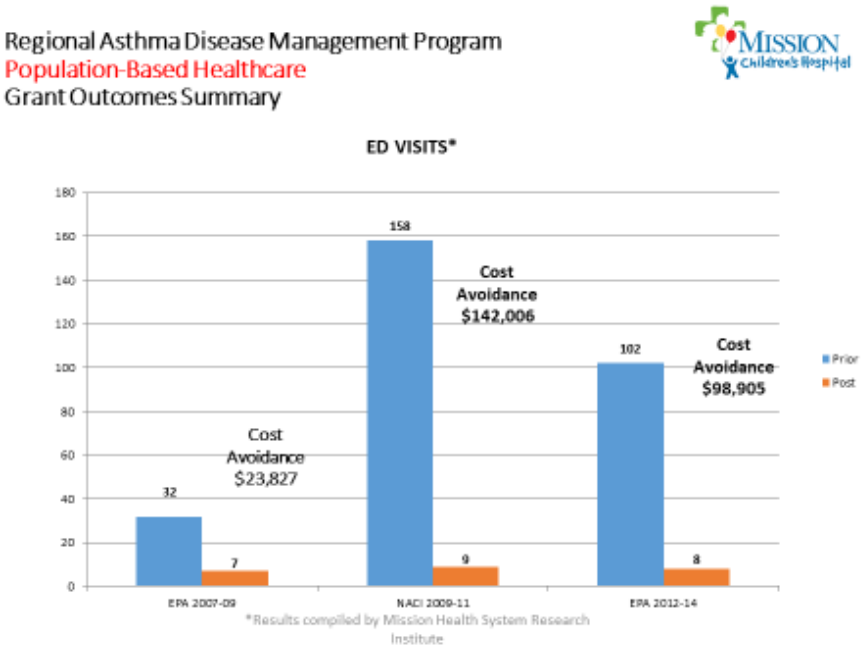
Source: Decision Support 2011 Data: $ 953.06/ ED Visit

Source: NC State Center for Health Statistics, 2009 Provisional Hospital Discharge Data: $12,061

*** Inclusive of all subjects--SABA, Oral Steroids, Air-trapping

Statistically Significant denoted as * $p<0.05$ and ** $p<0.01$ by parametric (paired t-test) and by non-parametric (Wilcoxon Signed Rank) tests

SAS/STAT®. SAS Institute Inc., SAS Campus Drive, Cary, NC 27513



Melinda also described how this program is funded, which is largely funded out of in-kind donations and community benefit dollars. Local churches, youth groups and charitable community partners were utilized to provide home remediation to our underserved asthmatic children and families throughout the western region of NC. Approximately, $23,000 dollars were provided in-kind over a two-year period. Currently the program does not receive funding from private payers or from Medicaid reimbursement.

Betsey Tilson, MD, MPH, Community Care of Wake and Johnston Counties

Betsey began the discussion with a review of asthma statistics for North Carolina. She also explained that Community Care of North Carolina is a state-wide medical home & care management program. Currently this is defined as a Primary Care, Care Management (PCCM) program, which limits the ability of the program to be paid and/or reimbursed. Under a Medicaid waiver, this could be expanded to allow for additional payment options.

The goal of Community Care of North Carolina (CCNC) is to improve access to, quality of and coordination of care and decrease the cost of care. Community Care operates via 14 local Networks, one central office, in all 100 NC counties, with more than 4,500 Primary Care Physicians, 1,360 medical homes, and 1.4 million enrollees.

CCNC's Asthma Disease Management Program was built on best practices defined by the CCNC Clinical Directors. The four core elements of the initiative are:

- Build capacity for routine assessment of asthma.
- Reduce unintended variation in care, and establish consistency of care.
- Build capacity to educate patients, families and school personnel about asthma.
- Report outcomes and process measures to all providers and staff regularly.

The program receives referrals from hospital admissions, emergency visits, direct primary care provider referrals and priority patients as identified by data. In addition, CCNC offers in-home environmental assessments, education, and medication compliance.

A multi-disciplinary team addresses these issues including:

- RN care managers provide general asthma education on medications, triggers and control;

- Environmental Health Specialist inspects home for possible triggers and provides education;
- RN and EHS identify other environmental needs (mattress and pillow case encasings, roach containment, HEPA vacuum, dehumidifier, etc.); and
- Pharm D does the Medication Reconciliation.

Betsey provided an overview of the results from 543 patients that were surveyed from 2008 to 2015. The data showed a cost reduction of $283,338. Examining sustainable financing options, Betsey explained that multidisciplinary staff and patient education tools are able to be funded at this time, through per member per month revenue. However, durable medical goods are not considered a Medicaid reimbursement. Durable medical costs for pillow encasings and mattress covers cost around $2,000 a year. Currently these costs are being paid for with donated funds and contributions. Betsey closed her session with a discussion around possible funding mechanisms for Medicaid, including the 1115 Innovation Waiver, which North Carolina is pursuing as part of Medicaid Reform for physical health and the 1915 (b)/(c) Managed Care Waiver.

d. **Healthcare Financing of Home-based Asthma Services**

Amanda Reddy, National Center for Healthy Housing

"Is anybody getting coverage? How do they do it?" Amanda posed these questions knowing they were paramount issues for the Forum participants. She guaranteed to everyone that it is possible and that while the approach must be tailored to fit each state, the broad pathway is similar. In coordination with other speaker's remarks, she provided information on additional options to consider based on NCHH research and emphasized the importance of learning how other states are doing this for asthma and other relevant health-related conditions.

She encouraged participants by stating that healthcare financing for healthy homes services is achievable, but requires a lot of hard work and a tailored approach to fit each state. Reddy took the time to discuss the nationwide survey that was conducted by the National Center for Healthy Housing to understand the rapidly evolving landscape of home-based asthma services. The reimbursement data by the numbers is the following:

- **13 states** have some Medicaid reimbursement for home-based asthma services in place (may be on a very limited scale)
- **3 additional states** expect to have some Medicaid reimbursement for home-based asthma services in place within a year
- **19 states** are exploring Medicaid reimbursement for home-based asthma services (or an expansion of existing services)
- **37 states** reported that no services are in place or the respondent was not sure whether services were in place or the state did not respond to the survey

> *"We have to be nimble and adapt. The destination [sustainable funding for in-home interventions] is the same, but we have to be flexible on how we get there."*
>
> **Amanda Reddy, Director of Programs and Impact, National Center for Healthy Housing**

Some mechanisms for coverage she described include the following:

- *Managed care contracts*. States can explicitly require the provision of in-home asthma services or an MCO may independently choose to fund the services. In California, one MCO is not getting direct reimbursement but it believes in the ROI of home-based services, so it uses administrative funds to cover them.

- *Medicaid administrative claiming*. In Texas, childhood lead advocates negotiated reimbursement for investigations in the home for lead-based paint. Environmental assessment and case identification are funded.
- *Early preventive screening test and diagnosis (EPSDT).* Some states cover case management; some cover environmental investigation.

Amanda closed out her presentation by presenting some key insights to participants:

- When building your Business Case, recognize that you are standing on the shoulders of many of those that have already completed this process before. Utilize them as resources, as you do not need to have all of the answers yourself.
- When you start to think about making your business case and talking to payers, it may require you to think differently. If you are serious about building a system, you may have to think about a different staffing model. Be nimble and flexible in the process.
- NCHH is equipped to provide training and technical assistance to help state agencies and other stakeholders design and implement asthma home visiting programs. Reddy encouraged attendees to utilize the resources provided by the National Center for Healthy Housing.

e. Panel: Pilot Programs and Perspectives on Sustainable Asthma Management Models and Open Discussion

Moderator: Amanda Reddy
National Center for Healthy Housing

Stacey Chacker, Health Resources in Action/Asthma Regional Council, New England Asthma Innovations Collaborative

In 2012, the Centers for Medicare and Medicaid Innovation Center Services granted a $4.2 million Health Care Innovation Award to Health Resources in Action (HRiA)/Asthma Regional Council of New England to establish the New England Asthma Innovation Collaborative (NEAIC). Stacey discussed the multi-state partnership that includes nine health care providers, six Medicaid payers, and policy makers. NEAIC's overarching goal was/is to improve asthma outcomes, quality of care, and health care costs of primarily Medicaid-enrolled children by advancing CHW-led home-based asthma interventions and sustainable payment systems.

Stacey presented findings from a two-and-a-half year period where NEAIC provided asthma home visiting services to 1,145 pediatric patients, and conducted an evaluation. A preliminary evaluation of 51 patients at six months pre-post yielded the following decreases:

- 90% in asthma-related ER visits (26% greater than comparison)
- 60% in overall ER visits (14% greater than comparison)
- 80% in use of oral corticosteroid (23% greater than comparison)
- $1104 in total health care costs

Stacey encouraged programs to think of payers as partners and invite them into the process early on. To start the conversation, Stacey recommended speaking with the medical directors first. She stressed the need to find common ground and show benefit, such as members receive high-quality services, reducing utilization, possible compliment to payer's case management services and recognition. She also encouraged individuals to clarify the 'ask' prior to meeting with payers The 'ask' can take many forms, but programs should consider claims data, referrals and discussing piloting new payment models and policy change as potential 'asks'.

In terms of financial sustainability, Stacey identified both existing and potential opportunities. These included funding programs from community benefits, working with departments of public health, securing private donor or charitable funding. Stacey also identified 1,115 waivers, MMCO, delivery system reform and pay for performance as potential future funding sources.

Frances Martini, RN, BSN, MBA, Government Clinical Programs, BlueCare Tennessee

Francis Martini detailed the inner-workings of the Medicaid Managed Care system. She emphasized the importance of addressing the business case for asthma, and there is a great impact when you are saving money while also saving lives. Currently, BlueCare spends more on asthma than they do on babies in neonatal intensive care, so there is much cost savings to be realized. Francis also noted that in terms of dollars spent on ages 5 to 20, asthma ranks second, after behavioral/chemical dependency.

BlueCare Tennessee detailed their goals as the following:

- Improve Asthma health outcome measurements for members by reducing gaps in cases and improving the percentage of members with asthma using appropriate medications.
- Reduce Asthma ED visits, Asthma inpatient/hospital admissions, increase the use of appropriate medications and improve the member's continuity of care.

Francis then identified some current issues with the fragmented health care system. Due to disparate pieces, it may be difficult to understand the member's comprehensive picture. While it may be difficult for primary care providers to ascertain what monitoring or medications are lacking, BlueCare is working tirelessly to reduce these gaps. One method they have implemented is to ensure primary care providers receive information about emergency room visits. This allows primary care providers to receive a more comprehensive picture of a patient's health.

When looking at a comprehensive approach, clinical care is not the only factor to consider. Francis also noted that it is important to recognize what other challenges, health and otherwise, families may be dealing with. Their focused approach includes member identification (i.e. referrals and stratification), member outreach (face-to-face), member assessment (i.e. education, environmental assessment and access) and connection to follow-up care (i.e. PCP, specialist and school partners).

Francis noted the value of these asthma meetings and shared that after presenting at the Southeast Regional Asthma Summit, BlueCare relooked at their efforts to engage members. They found that an important aspect of engagement is identifying the top ten conditions that are likely to impact a family. When examining their data, they found disparity in the different conditions impacting different communities. For the population they serve, asthma is found in 11 percent of African American children, as compared to 8 percent of all other races. The Asian population has a very low rate of asthma, at 5.2 percent. Using this data, they are able to target patients more appropriately and make sure health care staff are similar to the patients they serve, in terms of background, ethnicity, geography.

During this panel, Fran Martini reiterated that the "payer is part of the team" and that they are often an untapped resource in partnerships. She also identified a lot of the barriers to care, as there is a common misconception that once the attack happens is over, the condition is gone. Most Medicaid plans can provide a cost-effective alternative through early and periodic screening, diagnostic and treatment options. When discussing partnerships, Martini detailed the strength of advisory groups within the faith-based community. Their toolkit is comprehensive and they have developed a large network of trusted partners

Sally Szumlas, RN, MS, Care Management and Quality, Family Health Network and
Julie Kuhn, MSW, Sinai Urban Health Institute (Chicago)

Sally and Julie joined the Forum remotely, presenting via Skype from Chicago. They discussed Asthma Care Partners, which is a collaborative effort between the two organizations. Family Health Network (FHN) began in 1995 and is a not-for-profit provider sponsored HMO. It is directed by local health care providers and serves northern Illinois. The Sinai Urban Health Institute (SUHI) was founded in 2000 and is part of Sinai Health System, which operates on the west side of Chicago. SUHI conducts research that seeks to defined the scope and depth of health status and health services access disparities in communities and design, implement and refine high impact, cost saving community-based intervention strategies for a number of chronic health conditions, including asthma and diabetes.

SUHI has implemented a series of nine comprehensive interventions; four are currently underway. Their presentation focused on the use of community health workers and their role in combating asthma. Community

health workers undergo an intensive training process before working on this program. The training includes: Training and preparing CHWs to conduct home visits is an extensive process that includes:

- 40-hour CHW core skills curriculum which discusses principles of community health, motivational interviewing, communication skills and collaborating with medical professionals;
- 40-hour asthma training, including training on the disease pathophysiology, medications and devices, triggers and home environmental issues;
- Shadowing visits with experienced CHWs;
- Three levels of role-play evaluations with a mock participant, each progressively more complex; and
- Shadowed by CHW supervisor for three to five visits.

Physician champions assisted in establishing program integration to models of care coordination via Medicaid managed care (FHN) and private insurer (BCBSIL). The group concluded their presentation with recommendations for entities seeking to establish asthma management programs. They recommended finding a champion, establishing program structure as well as clear program processes, building in process and performance measures for impact evaluation, seek to leverage the interdisciplinary team and power of community health workers and, most importantly, don't give up!

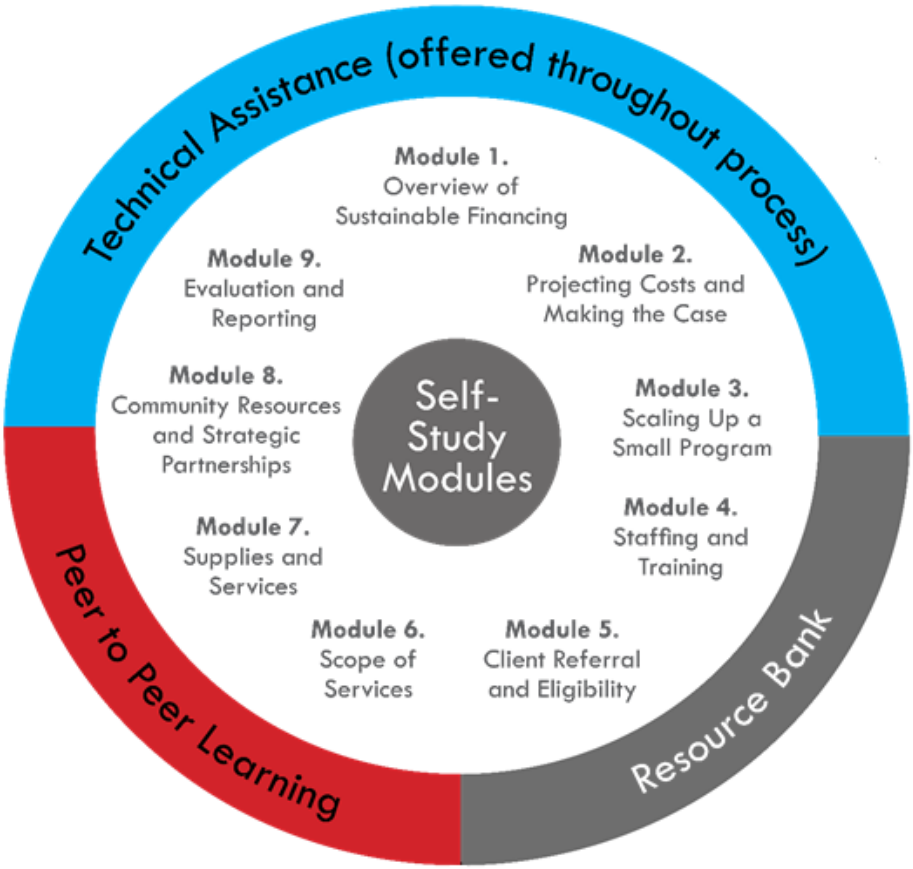
f. Open Discussion and Closing Remarks

Sally provided an overview of the day and asked a series of probing questions to further engage the audience. Next steps were identified, including disciplines to consider engaging with for future discussions. Those groups included:

- Pediatricians, physicians, nurse practitioners;
- School administrators and school nurses;
- Landlords, including Section 8 housing managers and owners;
- Housing code enforcement;
- Pharmacists;
- State/local faith based organizations; and
- Local health department directors, including environmental health staff.

The group also had several ideas for next steps, including:

Requesting training from NCHH once the new training modules are complete (see graphic below);
Ensuring that individuals sign up for the North Carolina Lead and Healthy Homes Outreach Task Force List-serv;
Encouraging more disciplines and individuals to join the NC Asthma Alliance; and
Promoting the Asthma Community Network and encouraging individuals to review the information available on the website.



National Center for Healthy Homes provides free training and technical assistance for states and programs in need. New programs will be offered soon.

APPENDIX A
Agenda

North Carolina Forum on Sustainable In-Home Asthma Management
September 13, 2016
William Friday Center at the University of North Carolina
100 Friday Center Drive
Chapel Hill, NC 27517

8:30 – 9:00 a.m. **Registration**

9:00 – 9:25 a.m. **Welcome Remarks**

Sally Herndon, MPH
North Carolina Department of Health and Human Services

Annie Hirsch, MPH, CPH
North Carolina Department of Health and Human Services

9:25 – 9:45 a.m. **Icebreaker: Information Exchange**

9:45 – 10:35 a.m. **Federal Initiatives and Perspectives for Collaboration and Promotion of Home Interventions for Pediatric Asthma**

Peter Ashley, DrPH
Office of Lead Hazard Control and Healthy Homes
U.S. Department of Housing and Urban Development

Paul Garbe, DVM, MPH
Asthma and Respiratory Health Branch
National Center for Environmental Health
Centers for Disease Control and Prevention

Heidi LeSane
Community Support Section
U.S. Environmental Protection Agency

10:35 – 12:35 p.m. **North Carolina – State of the State and Open Discussion**

Moderator: Neasha Graves
Environmental Resource Program
UNC Chapel Hill Institute for the Environment

Eastern NC: Greg Kearney, DrPH, MPH, RS
East Carolina University, Brody School of Medicine,
Department of Public Health

Theresa Blount, RN, BSN, AE-C
Vidant Medical Center

Western NC: Melinda Shuler, BSBA, RCP, NDC, HHS, AE-C

Mission Children's Hospital

Central NC: Betsey Tilson, MD, MPH
Community Care of Wake and Johnston Counties

12:35 – 1:35 p.m. **Working Lunch**

1:35 – 1:50 p.m. **Healthcare Financing of Home-based Asthma Services**
Amanda Reddy
National Center for Healthy Housing

1:50 – 3:00 pm **Panel: Pilot Programs and Perspectives on Sustainable Asthma Management Models and Open Discussion**

Moderator: Amanda Reddy
National Center for Healthy Housing

Presenters: Stacey Chacker
Health Resources in Action/Asthma Regional Council
New England Asthma Innovations Collaborative

Frances Martini, RN, BSN, MBA
Government Clinical Programs
BlueCare Tennessee

Remote Presentation: Sally Szumlas, RN, MS
Care Management and Quality
Family Health Network

and

Julie Kuhn, MSW
Sinai Urban Health Institute (Chicago)

3:00 – 3:15 p.m. **Break**

3:15 – 3:45 p.m. **Small Group Discussions: Future Directions and Priorities**

3:45 – 4:00 p.m. **Open Discussion: Reflections on the Day and Closing Remarks**

Sally Herndon

Peter Ashley

APPENDIX B
List of Participants

First Name	Last Name	Organization
Peter	Ashley	HUD
Nellie	Benitez	Chatham County Health Department
Theresa	Blount	Vidant Medical Center
Stanislavka	Bratic	DMA
Janet	Capehart	Vidant Bertie/Chowan Hospitals
Carl	Carroll	Alamance County Health Department
Stacey	Chacker	Health Resources in Action
Barry	Clayton	Family Connection of SC and South Carolina Asthma Alliance
Arlen Penny	Coleman	Community Care of North Carolina, of Northern Piedmont
Ashley	Curtice	Cumberland County Department of Public Health
Curtis	Davis	Greensboro NC
Pam	Diggs	NC Tobacco Prevention and Control Branch
Elizabeth	Fridley	CCPHD
Kim	Gaetz	NC DPH, Children's Environmental Health Unit
Paul	Garbe	CDC
Mary	Gillett	Guilford County Department of Health and Human Services
Neasha	Graves	UNC Institute for the Environment, Environmental Resource Program
Sally	Herndon	NC Division of Public Health
Annie	Hirsch	NC Division of Public Health
Melissa	Holloway	Amerigroup- Georgia
Erica	Hopkins	North Carolina Housing Finance Agency
Beatrice	Jackson	PEACH Durham
Greg	Kearney	East Carolina University, Brody School of Medicine
Kelly	Kimple	NC Division of Public Health, Women's and Children's Section
Donna	King	Orange Co. Health Dept.
Katrin	Kral	EPA
Ashwini	Kulkarni	Fulton county health department, Atlanta, GA
Betsy	Laforge	Blue Cross Blue Shield of NC
Tobin	Lee	Macon County Department of Public Health
Heidi	LeSane	US EPA Region 4
david	lipton	NC department of Health and Human Services, Division of Public Health, Occupational and Environmental Epidemiology Branch
Roxana	Lopez	Chatham County- Environmental Health
Francesca	Lopez	GA Dept. of Public Health

Anne	Lowry	Chatham County Public Health Department
Fran	Martini	Blue Cross Blue Shield of TN
Nidu	Menon	NC DST- SHP
Madlyn	Morreale	Legal Aid of North Carolina
Cheryl	Murphy	Blue Cross Blue Shield of Tennessee
Sharon	Nelson	NC Division of Public Health
Ed	Norman	DPH/Environmental Health Section
Gayle	Olson	Albemarle Regional Health Services
Harita	Patel	DHHS - DMA
Lonnie	Pressley	Jefferson County Department of Health
Jessica	Pyjas	NC State Health Plan
Sherry	Rathod	City of Charlotte
Kiana	Redd	Orange County Health Department
Amanda	Reddy	NCHH
April	Richard	Greensboro Housing Coalition
Andrew	Roszak	Penngood
Lorisa	Seibel	Reinvestment Partners
Kathleen	Shapley-Quinn	NC DPH
Mina	Shehee	NC DHHS
Melinda	Shuler	Mission Children's Hospital
LATOYA	STRANGE	ORANGE COUNTY HEALTH DEPT
Betsey	Tilson	CCWJC
Chris	Trent	US Dept. of Housing and Urban Development - Office of Lead Hazard Control and Healthy Homes
Ernest	Watts	Robeson County Health Department
Amy	Williams-Phelps	NC Medicaid Outpatient Pharmacy
Debra	Yarbrough	Craven County Health Department
Karin	Yeatts	UNC-Chapel Hill