Welcome!

North Carolina Forum on Sustainable, In-home Asthma Management

September 13, 2016.
William Friday Center at Chapel Hill. 8:30 A.M.- 4:00 P.M.

Making Stone Soup

Thank you to our Sponsors, Partners and Participants !!

And all of YOU!

Asthma Control

Asthma is a chronic lung disease with recurring symptoms. Symptoms include wheezing, breathlessness, chest tightness, and coughing.

- 1 in 11 children, and 1 in 12 adults have asthma (CDC) [PDF - 531 kB].
- Asthma costs the United States $56 billion each year (CDC) [PDF - 531 kB].
- There's no cure for asthma. People with asthma can manage their disease with medical care and prevent attacks by avoiding triggers (CDC) [PDF - 531 kB].

Task Force Recommendations and Findings

This table lists interventions reviewed by the Community Guide, with a summary of the Task Force finding (definitions of findings). Click on an underlined intervention title for a summary of the review.

Intervention	Task Force Finding
Home-Based Multi-Trigger, Multicomponent Environmental Interventions	
For Children and Adolescents with Asthma	Recommended June 2008
For Adults with Asthma	Insufficient Evidence June 2008

Asthma In North Carolina: Data Update

Prepared By: Kathleen Jones-Vessey
North Carolina Department of Health & Human Services Division of Public Health
State Center for Health Statistics

Delivered By: Annie Hirsch, MPH, CPH
Environmental Epidemiologist
Division of Public Health, Occupational and Environmental Epidemiology Branch
North Carolina Department of Health and Human Services

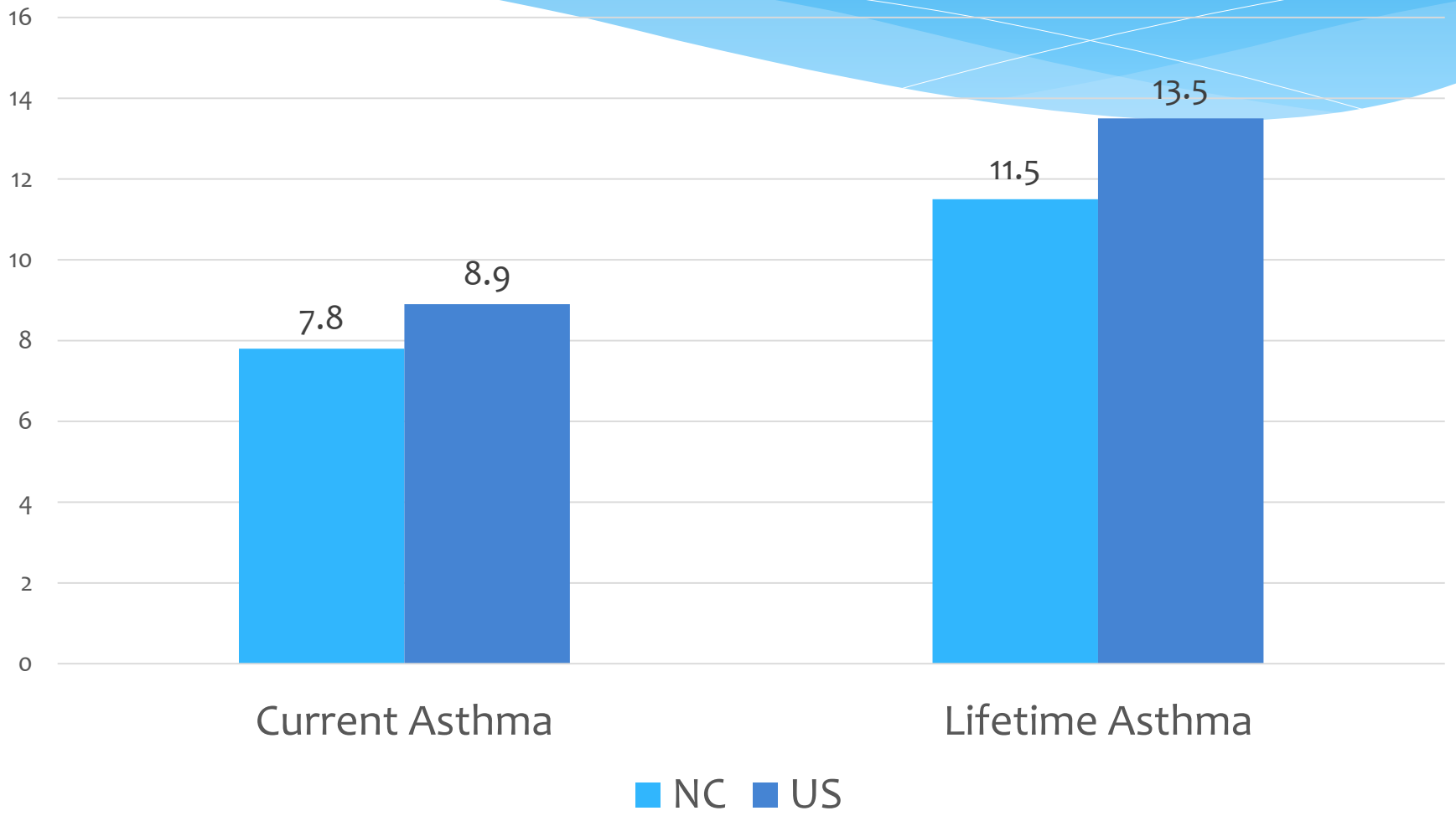
nc department of health and human services

North Carolina State Center for Health Statistics

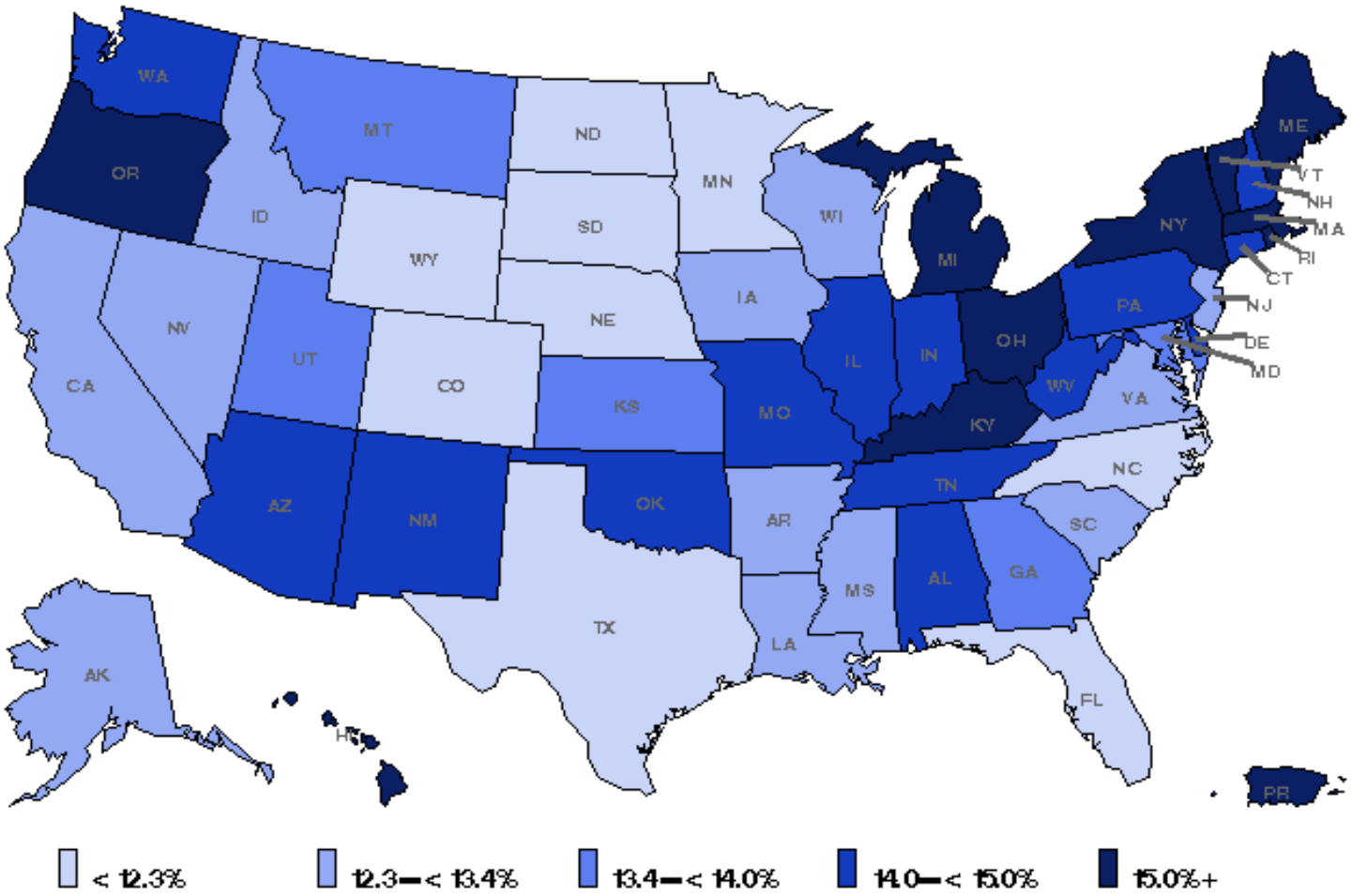
NCPH North Carolina Public Health

Adult Asthma Prevalence

2014 Adult Asthma Prevalence, Current & Lifetime: U.S. & N.C.



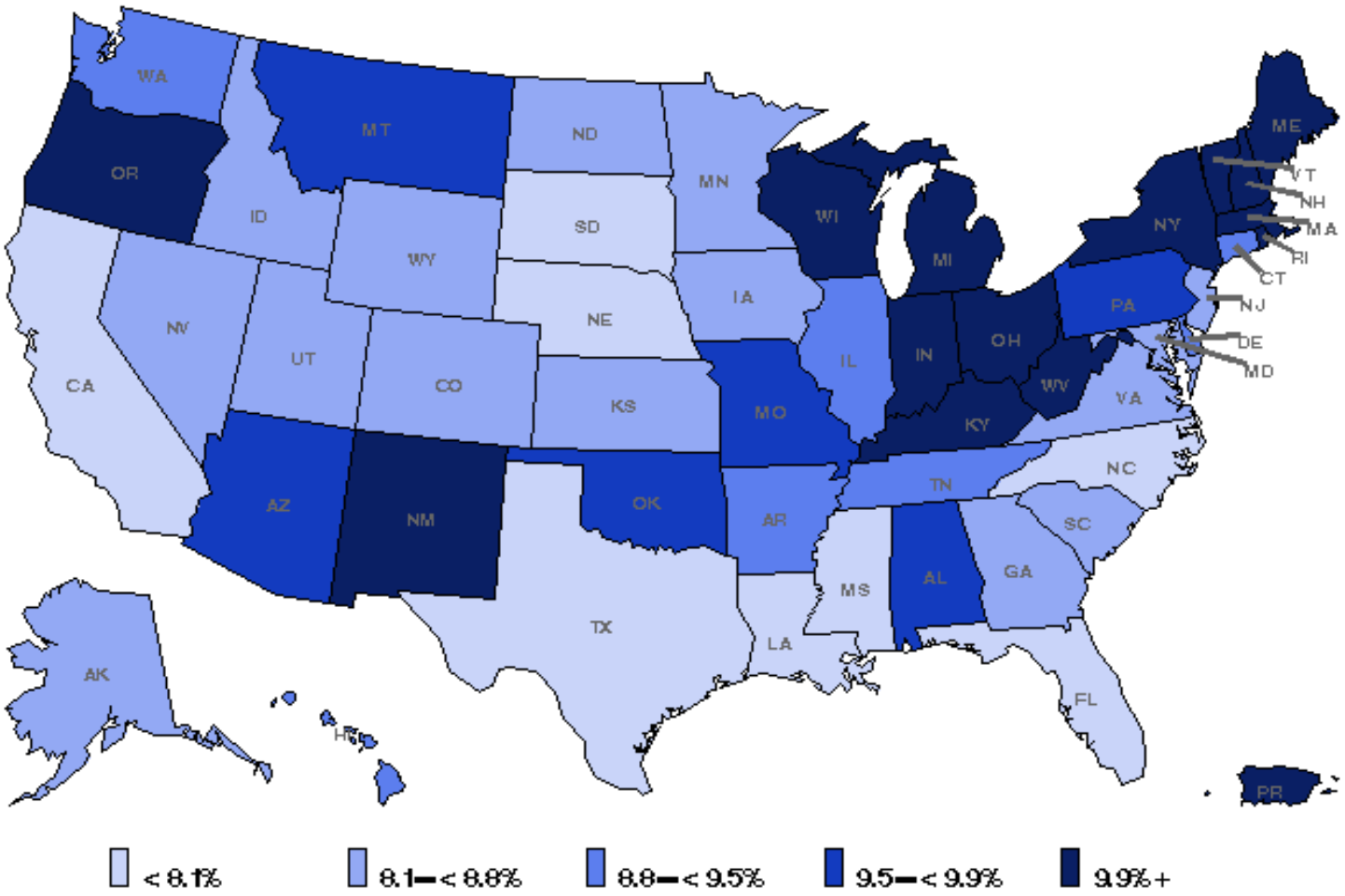
Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS)



Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS)

Map C1

Adult Self–Reported Current Asthma Prevalence Rate (Percent) by State, BRFSS 2014



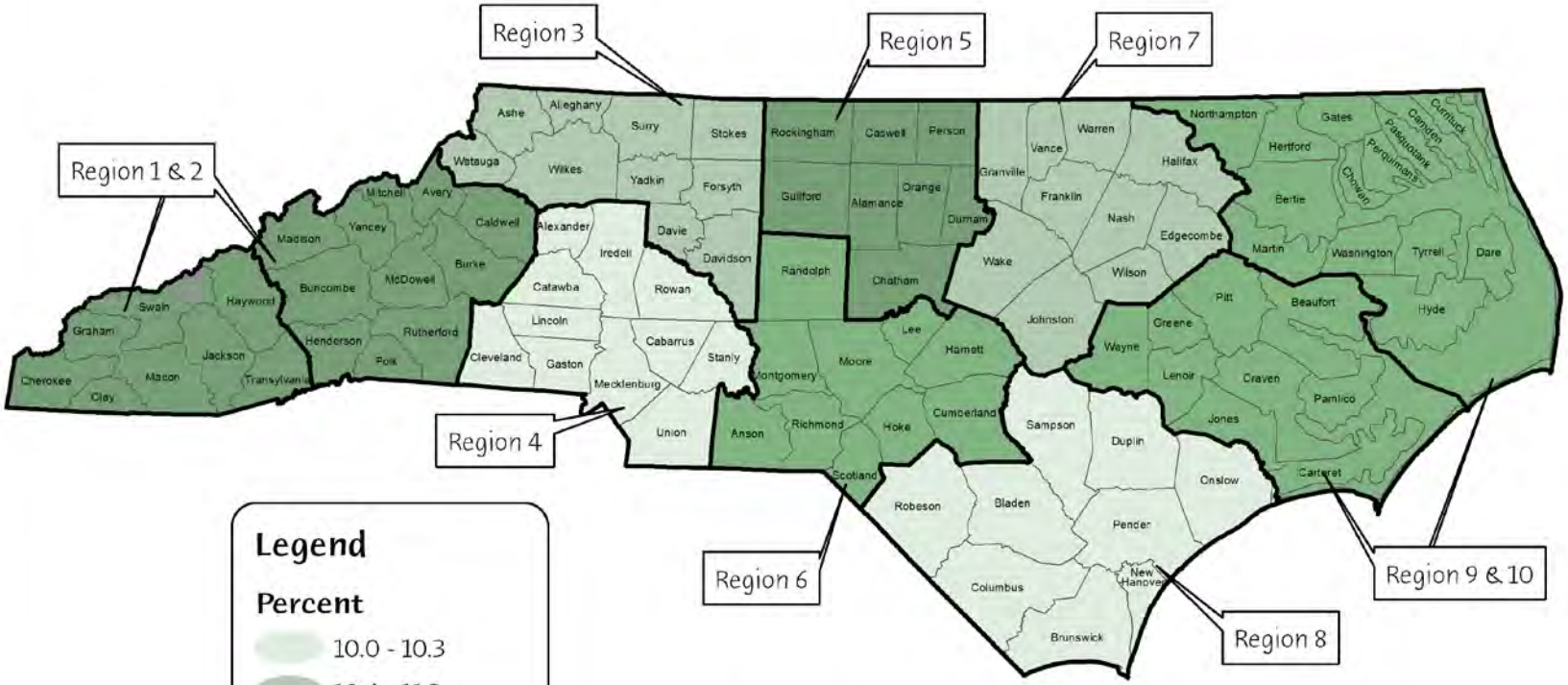
Footnote: Ranges are based on quintiles of the overall prevalence estimates from year 2011 data

Air Pollution and Respiratory Health Branch, National Center for Environmental Health
Centers for Disease Control and Prevention

Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS)

Percentage of North Carolina Adults Who Answered Yes to "Has a doctor, nurse, or other health professional ever told you that you had asthma?"

by North Carolina Association of Local Health Directors (NCALHD) Regions, 2014



Source: 2014 Behavioral Risk Factor Surveillance System (BRFSS)

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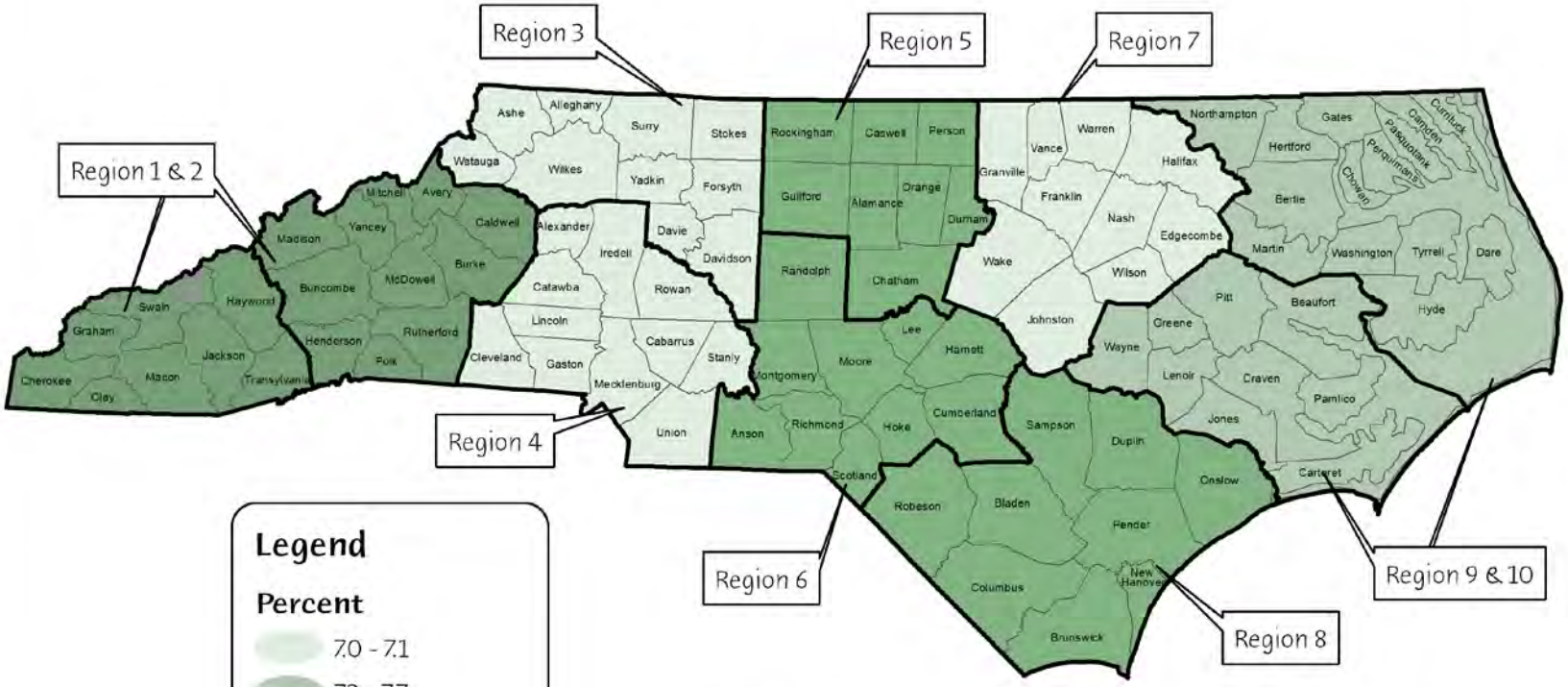
Percentage of North Carolina Adults Who Answered Yes to "Do you still have asthma?*"

by North Carolina Association of Local Health Directors (NCALHD) Regions, 2014



Source: 2014 Behavioral Risk Factor Surveillance System (BRFSS)
*Adults without asthma are included in the denominator to estimate current asthma prevalence.

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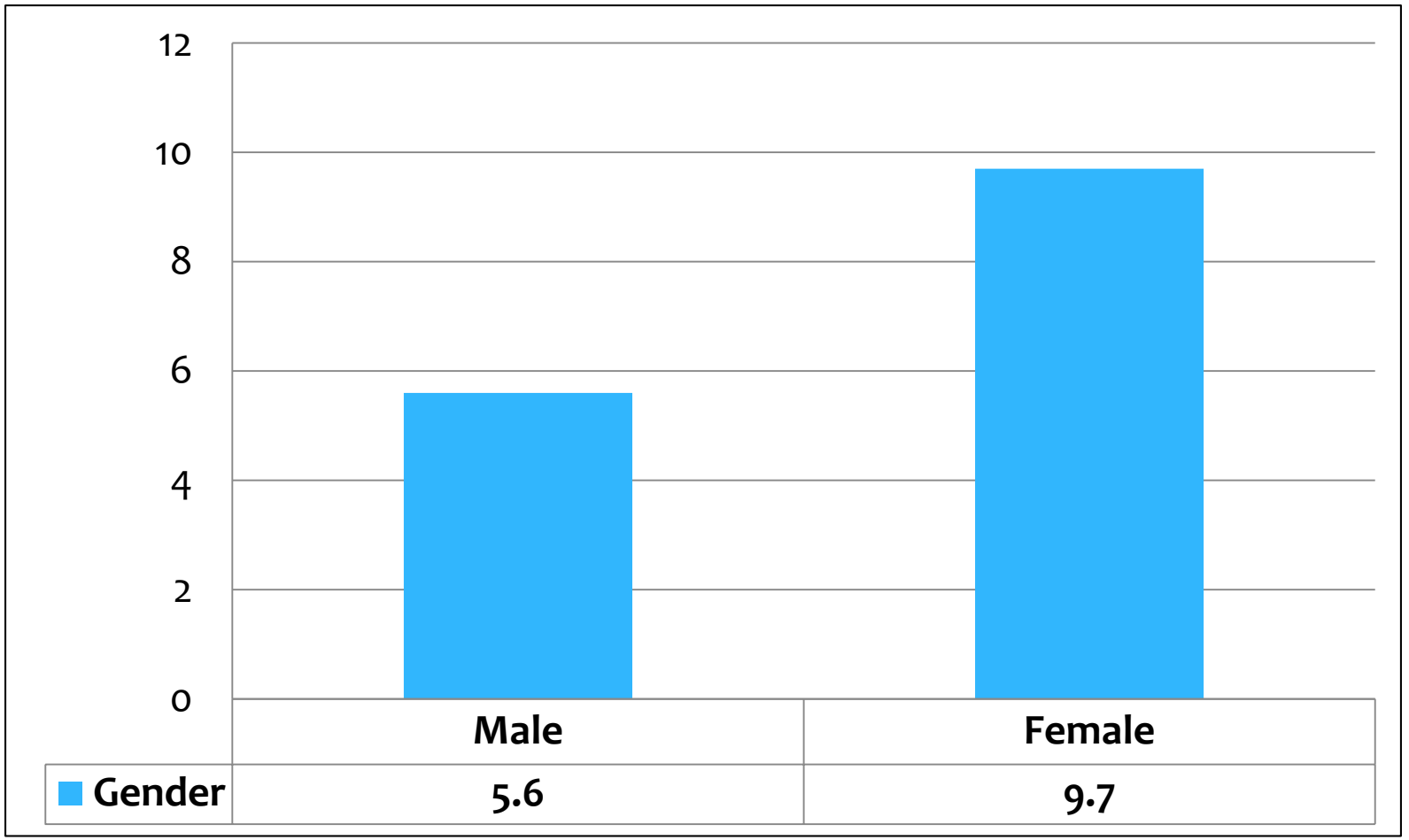
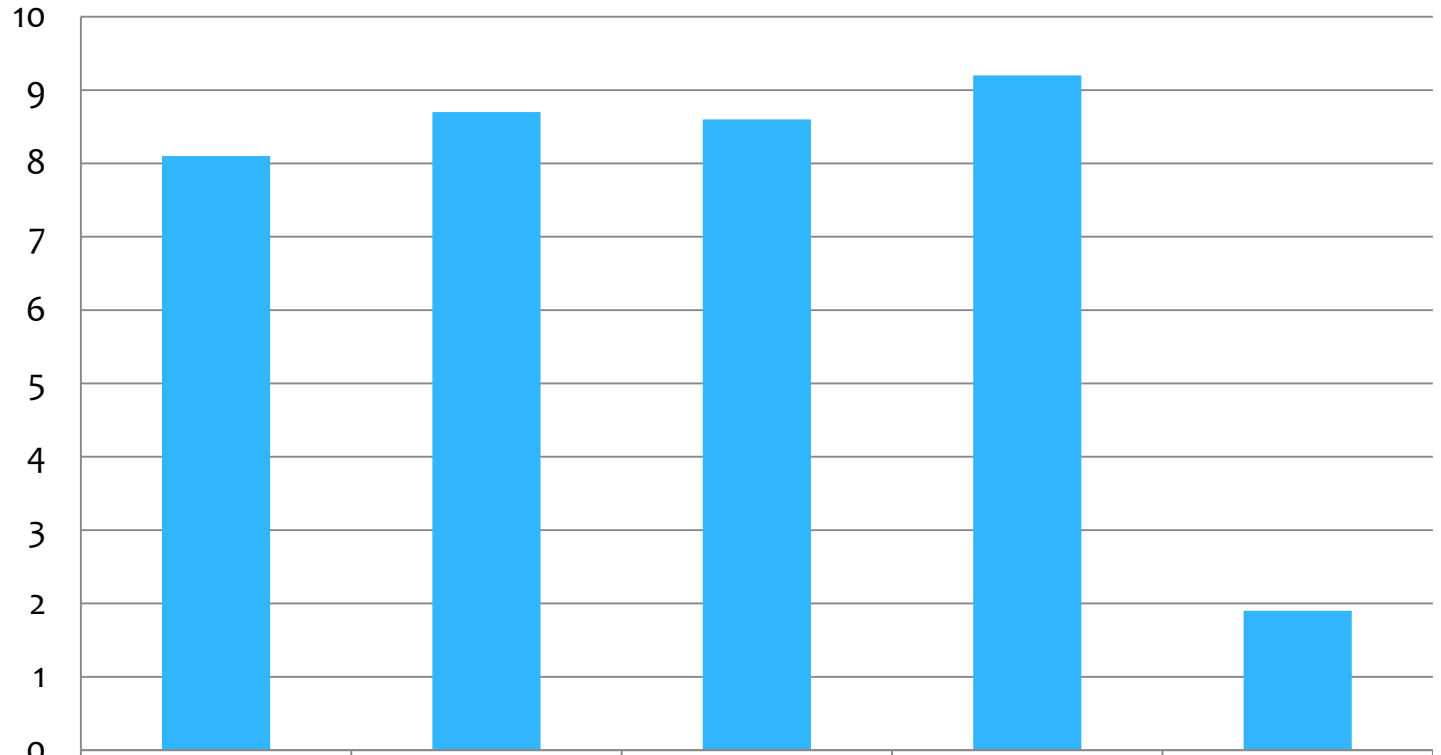
NC Adult Current Asthma Prevalence Rates by Gender, 2014



Source: North Carolina State Center for Health Statistics, NC Behavioral Risk Factor Surveillance System (NC BRFSS)

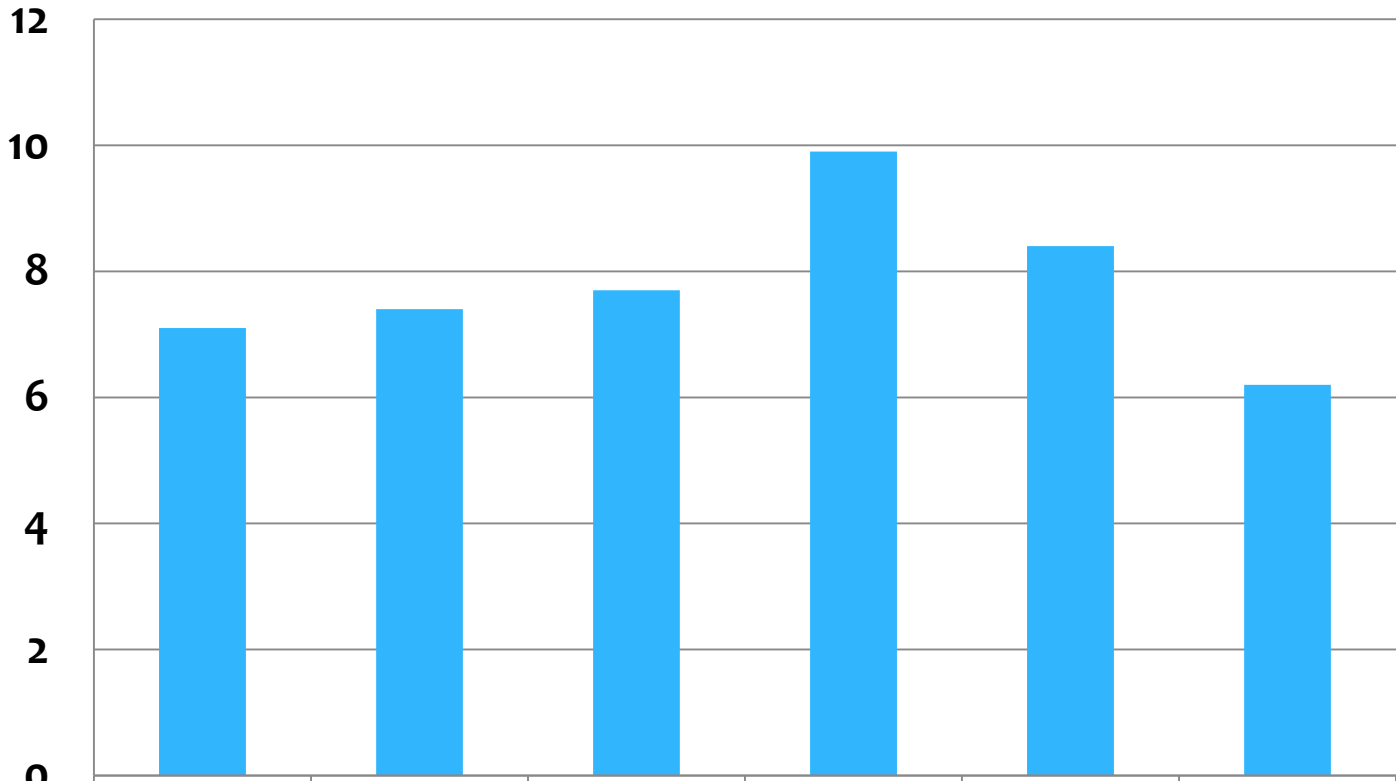
NC Adult Current Asthma Prevalence Rates by Race/Ethnicity, 2014



	Non-Hispanic White	Non-Hispanic Black	Non-Hispanic Am Indian	Non-Hispanic Other	Hispanic
Race/Ethnicity	8.1	8.7	8.6	9.2	1.9

Source: North Carolina State Center for Health Statistics, NC Behavioral Risk Factor Surveillance System (NC BRFSS)

NC Adult Current Asthma Prevalence Rates by Age Group, 2014



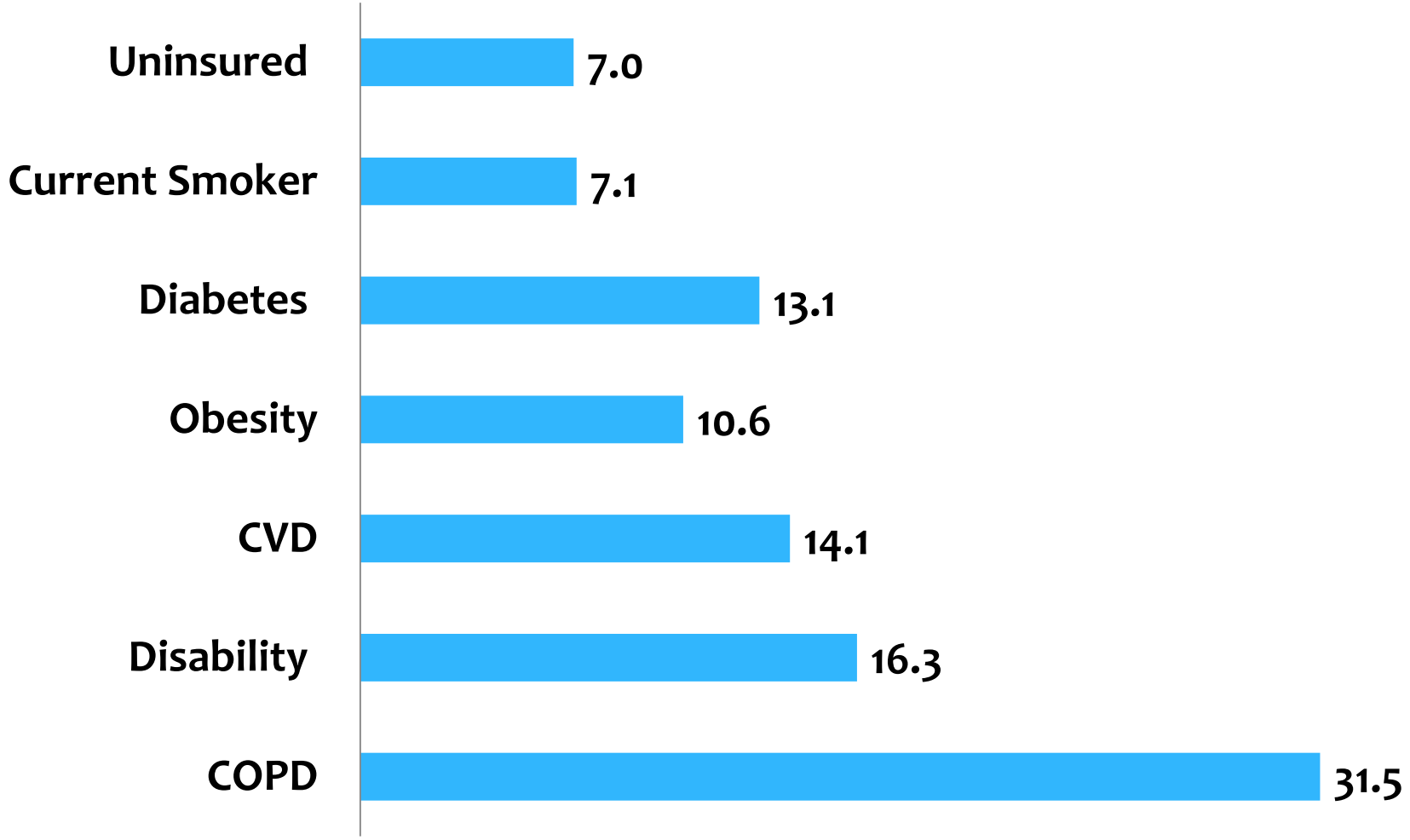
	18-34	35-44	45-54	55-64	65-74	75+
Age Group	7.1	7.4	7.7	9.9	8.4	6.2

Source: North Carolina State Center for Health Statistics, NC Behavioral Risk Factor Surveillance System (NC BRFSS)

NC Adult Current Asthma Prevalence Rates by Household Income, 2014

Source: North Carolina State Center for Health Statistics, NC Behavioral Risk Factor Surveillance System (NC BRFSS)

NC Adult Current Asthma Prevalence
Comorbid Conditions/Risk Factors, 2014



Source: North Carolina State Center for Health Statistics, NC Behavioral Risk Factor Surveillance System (NC BRFSS)

Asthma Mortality

NC Resident Deaths with Asthma Listed as a Primary Cause, CY2014

Total Asthma Deaths	**106**
Crude (unadjusted) Mortality Rate	**10.7**
Age-adjusted Mortality Rate	**10.0**

Source: North Carolina State Center for Health Statistics, Death Certificate Data

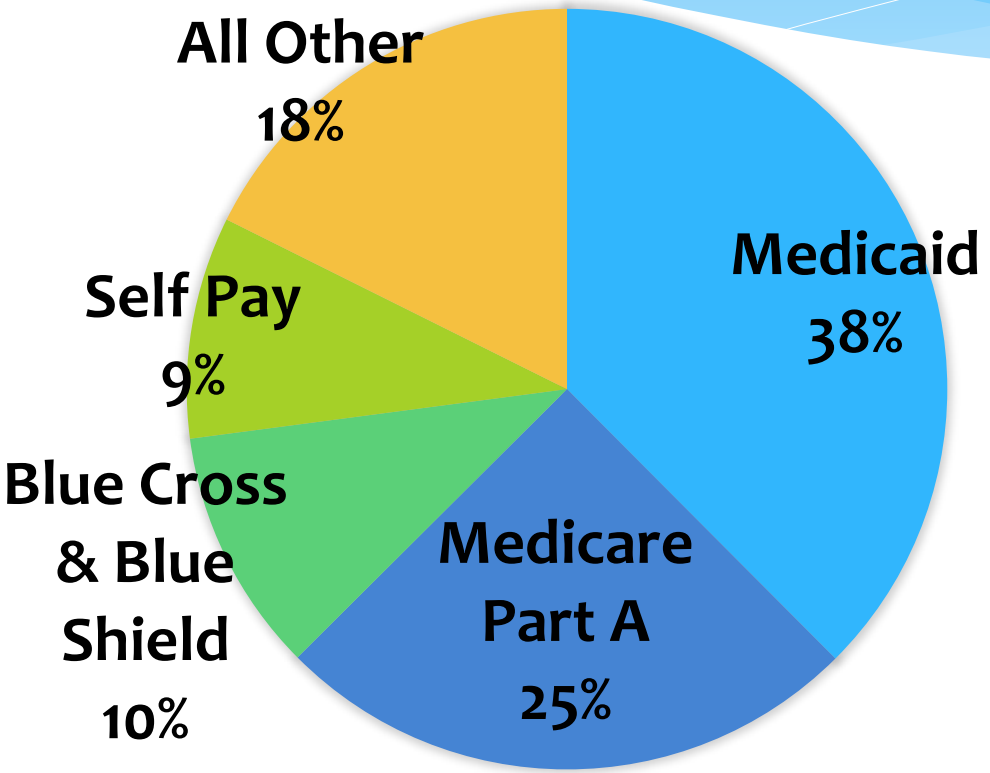
Asthma Hospitalizations

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

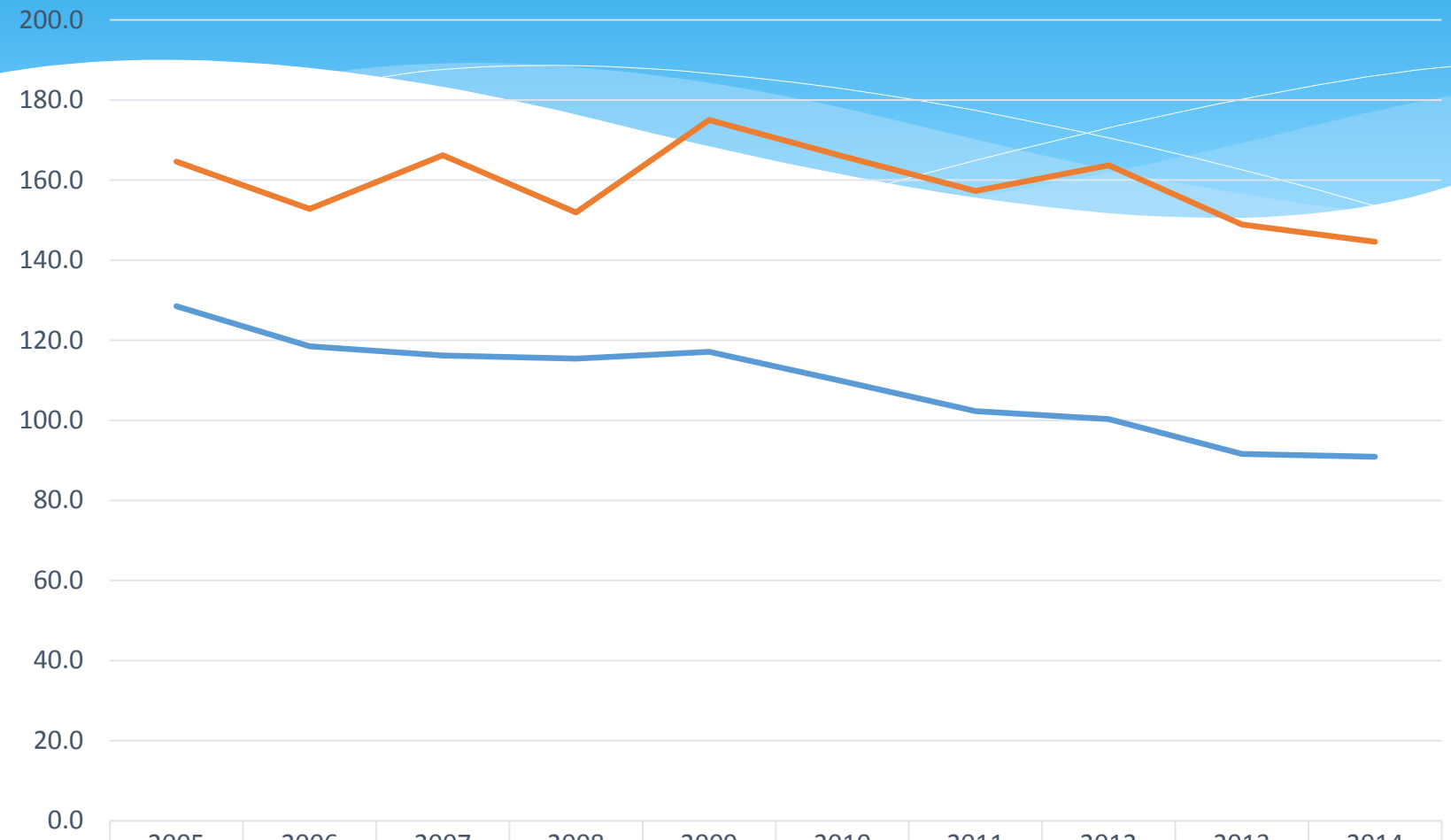
Source: North Carolina State Center for Health Statistics, Inpatient Hospital Discharge Data

2014 NC Resident Inpatient Hospitalizations with A Primary Diagnosis of Asthma by Payer



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

2005-2014 Asthma Hospital Discharge Rates per 100,000 Resident Population

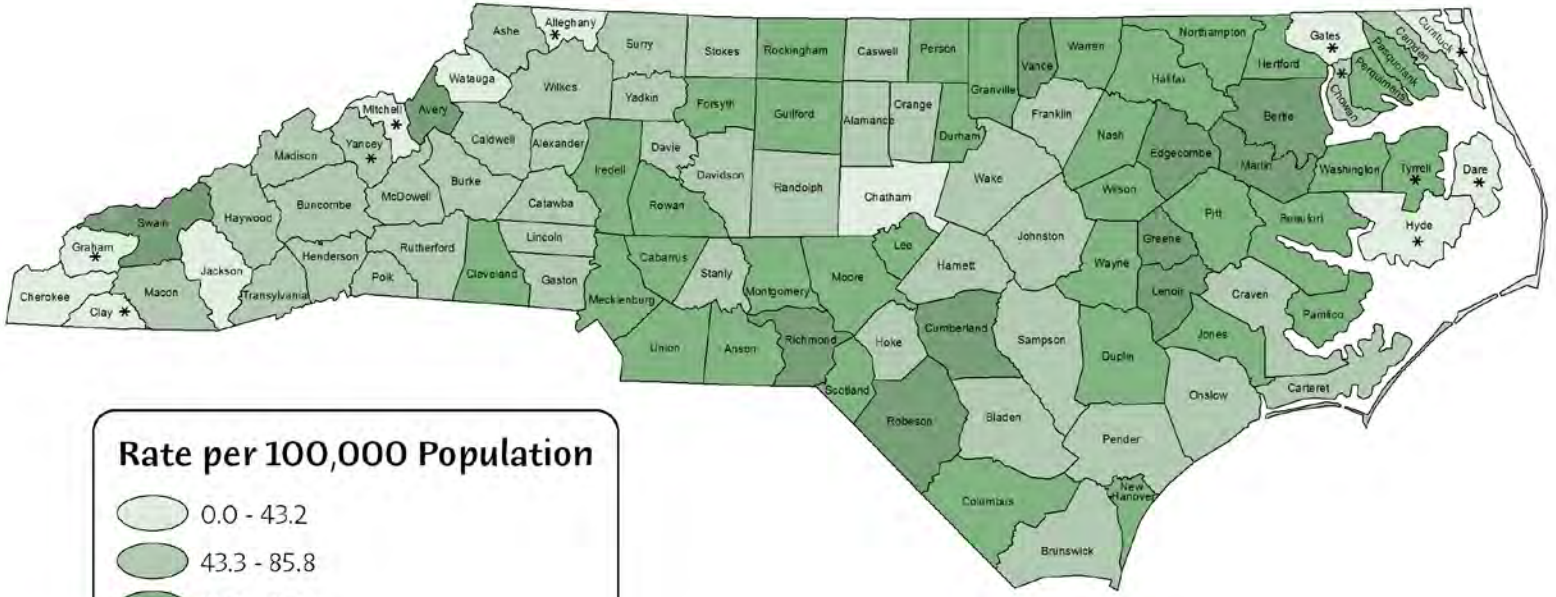


	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total	128.5	118.5	116.2	115.4	117.1	109.8	102.3	100.3	91.6	90.9
Ages 0-14	164.6	152.8	166.2	151.9	175.0	166.0	157.3	163.7	148.9	144.6

* Primary Diagnosis of Asthma

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

North Carolina
2014 Hospital Discharge Rates with the Primary Diagnosis of Asthma, by County



Rate per 100,000 Population

- 0.0 - 43.2
- 43.3 - 85.8
- 85.9 - 151.2
- 151.3 - 318.3

Source: North Carolina Hospital Discharge Data
Data includes only North Carolina resident data, served in North Carolina hospitals. It is provisional data and is subject to change.

*Rates based on small numbers (fewer than 10 cases) are unstable and should be interpreted with caution.

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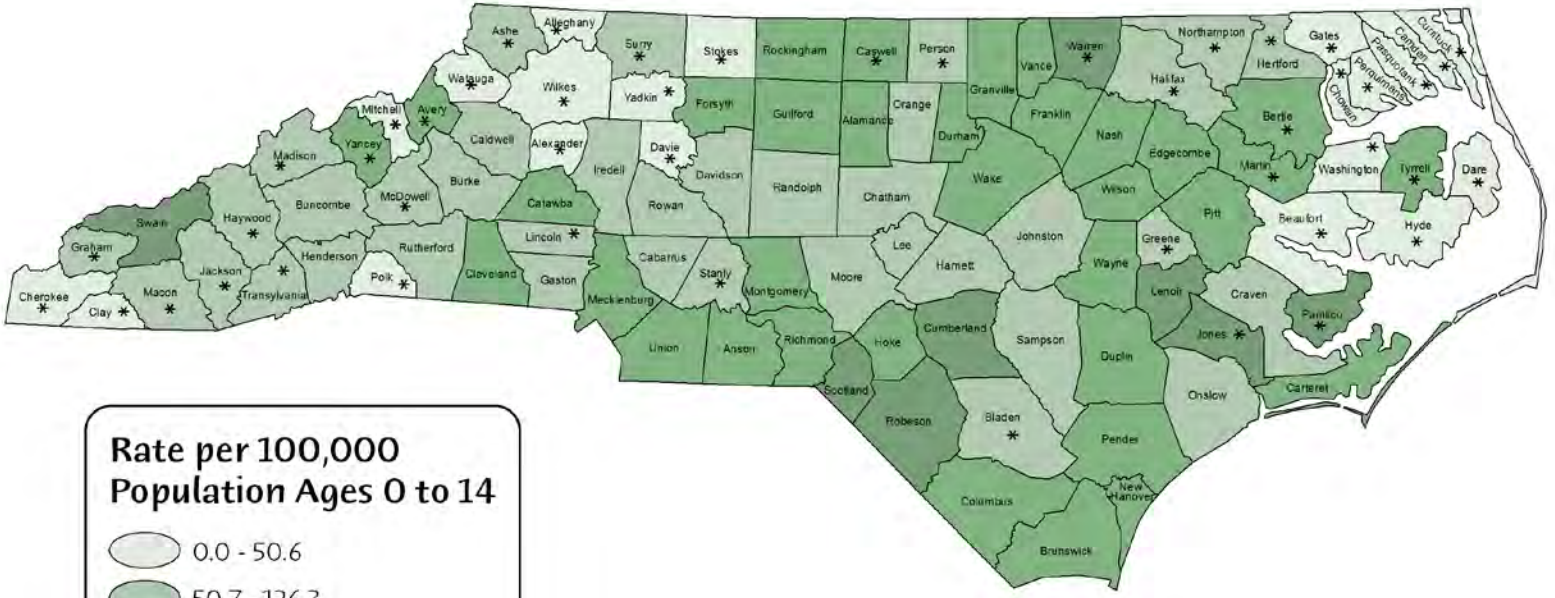
North Carolina
2014 Hospital Discharge Rates with the Primary Diagnosis of Asthma for Ages 0 to 14, by County



Rate per 100,000 Population Ages 0 to 14

- 0.0 - 50.6
- 50.7 - 126.3
- 126.4 - 222.1
- 222.2 - 486.2

Source: North Carolina Hospital Discharge Data
Data includes only North Carolina resident data, served in North Carolina hospitals. It is provisional data and is subject to change.

*Rates based on small numbers (fewer than 10 cases) are unstable and should be interpreted with caution.

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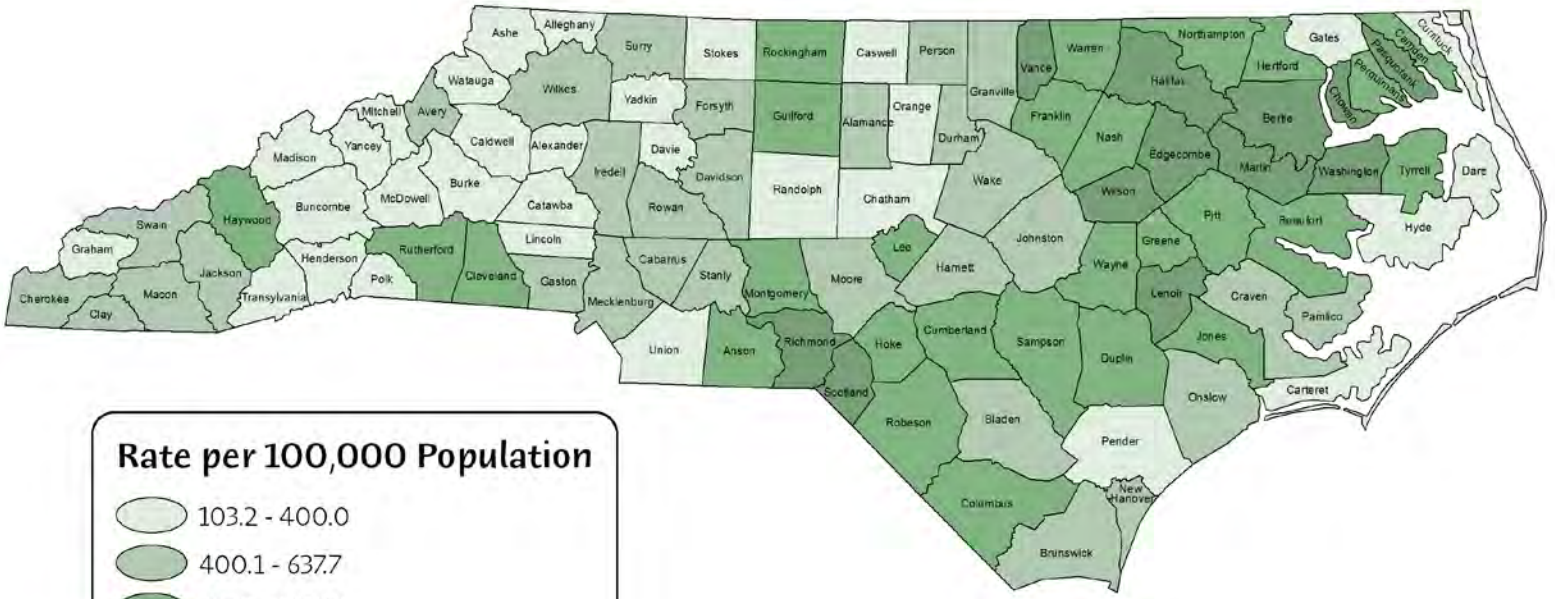
Emergency Department Visits for Asthma

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

North Carolina
2014 Emergency Department Visits with the Primary Diagnosis of Asthma, by County



Rate per 100,000 Population

- 103.2 - 400.0
- 400.1 - 637.7
- 637.8 - 1015.3
- 1015.4 - 1696.0

Source: North Carolina Hospital Discharge Data
Data includes only North Carolina resident data, served in North Carolina hospitals. It is provisional data and is subject to change.

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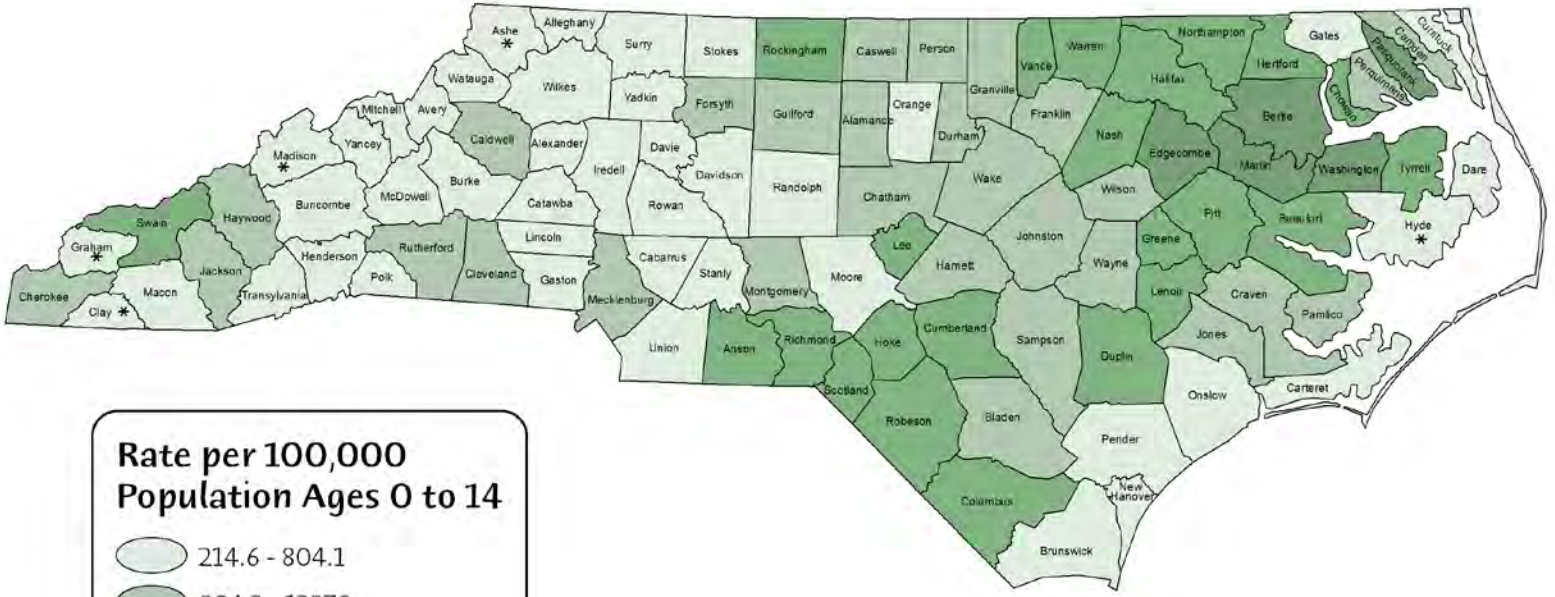
North Carolina
2014 Emergency Department Visits with the Primary Diagnosis of Asthma for Ages 0 to 14, by County



Rate per 100,000 Population Ages 0 to 14

- 214.6 - 804.1
- 804.2 - 1387.0
- 1387.1 - 2218.5
- 2218.6 - 3358.2

Source: North Carolina Hospital Discharge Data
Data includes only North Carolina resident data, served in North Carolina hospitals. It is provisional data and is subject to change.

*Rates based on small numbers (fewer than 10 cases) are unstable and should be interpreted with caution.

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August 2016

Asthma &
NC Children

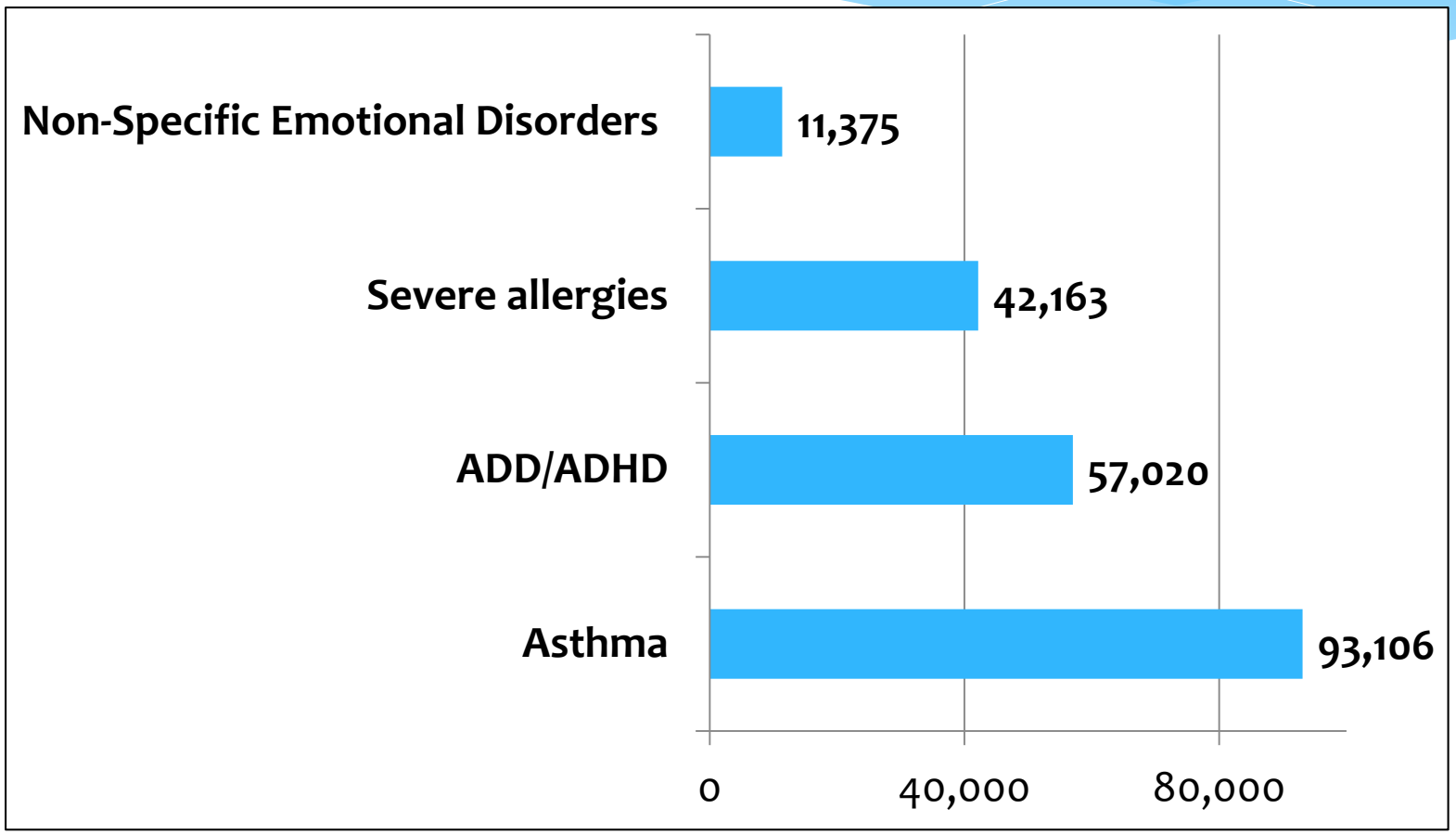
Prevalence of Asthma Among NC Resident Children

	Ever Asthma	Current Asthma
Total	17.5%	13.6%
Male	18.5%	14.2%
Female	16.4%	13.0%
White	14.4%	9.9%
African American/Black	28.1%	25.6%
Other Minorities	11.8%	8.7%
Hispanic	8.5%	*

*** Statistically unreliable estimate.**

Source: North Carolina State Center for Health Statistics, Child Health Assessment Monitoring Program (CHAMP)

Most Common Chronic Health Conditions Reported to School Nurses, 2014-15



Source: North Carolina Annual School Health Services Report: 2014-2015

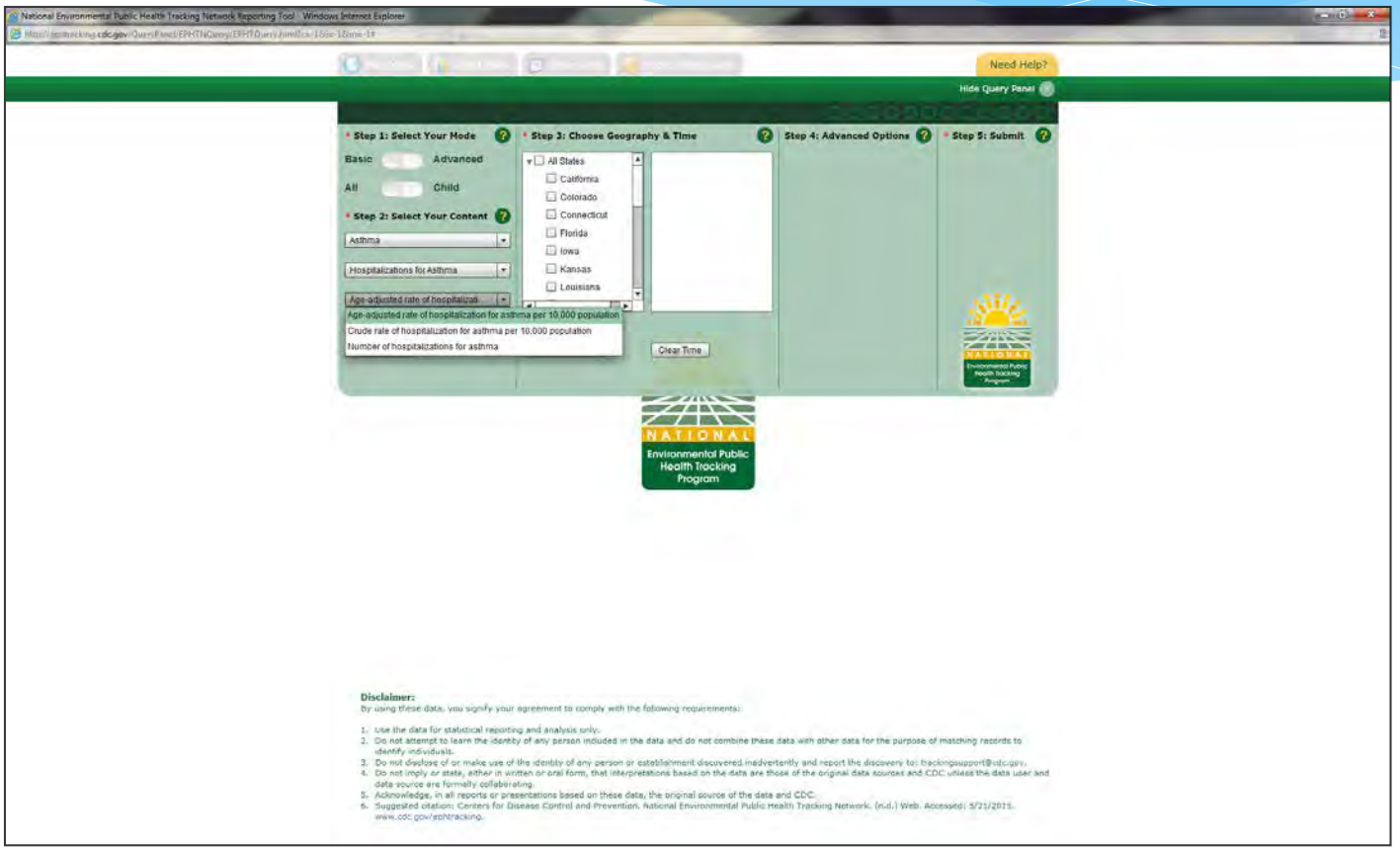
School Nurse Asthma Case Management Outcomes

Outcomes	% of Asthmatic Students Demonstrating Improvement
1. Consistently verbalized accurate knowledge of the pathophysiology of their condition	78%
2. Consistently demonstrated correct use of asthma inhaler and/or spacer	83%
3. Accurately listed his/her asthma triggers	62%
4. Remained within peak flow/pulse oximeter plan goals	66%
5. Improved amount and/or quality of regular physical activity	77%
6. Improved grades	64%
7. Decreased number of school absences	70%

Source: North Carolina Annual School Health Services Report: 2014-2015

Asthma & Environmental Health

Environmental Public Health Tracking Program: NC Trends Data



http://ephtracking.cdc.gov/showHome.action

Contact Information

* Kathleen Jones-Vessey, M.S.
* N.C. Department of Health & Human Services
* Statistical Services Manager, State Center for Health Statistics-Division of Public Health
* 222 North Dawson Street
* Raleigh, NC 27603-1392
* Phone: 919-715-9692
* Fax: 919-733-8485
* Kathleen.Jones-Vessey@dhhs.nc.gov
* www.schs.state.nc.us

Icebreaker


U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT


DEPARTMENT OF HEALTH & HUMAN SERVICES USA
CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION


aa
asthma
alliance
of north
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UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

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

HUD and Partner Activities to Improve Childhood Asthma

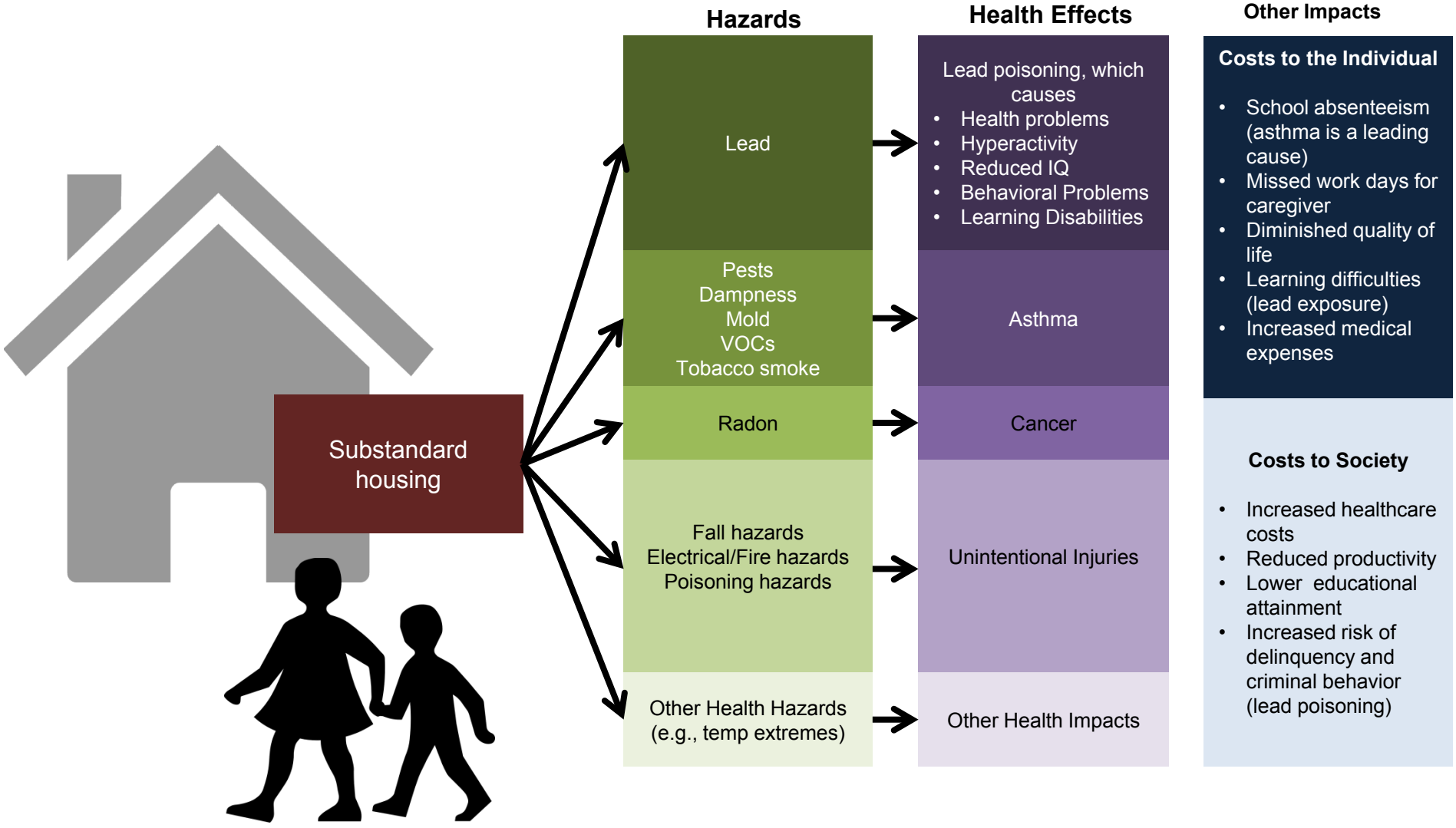
North Carolina Forum on Sustainable
in-Home Asthma Management

September 13, 2016

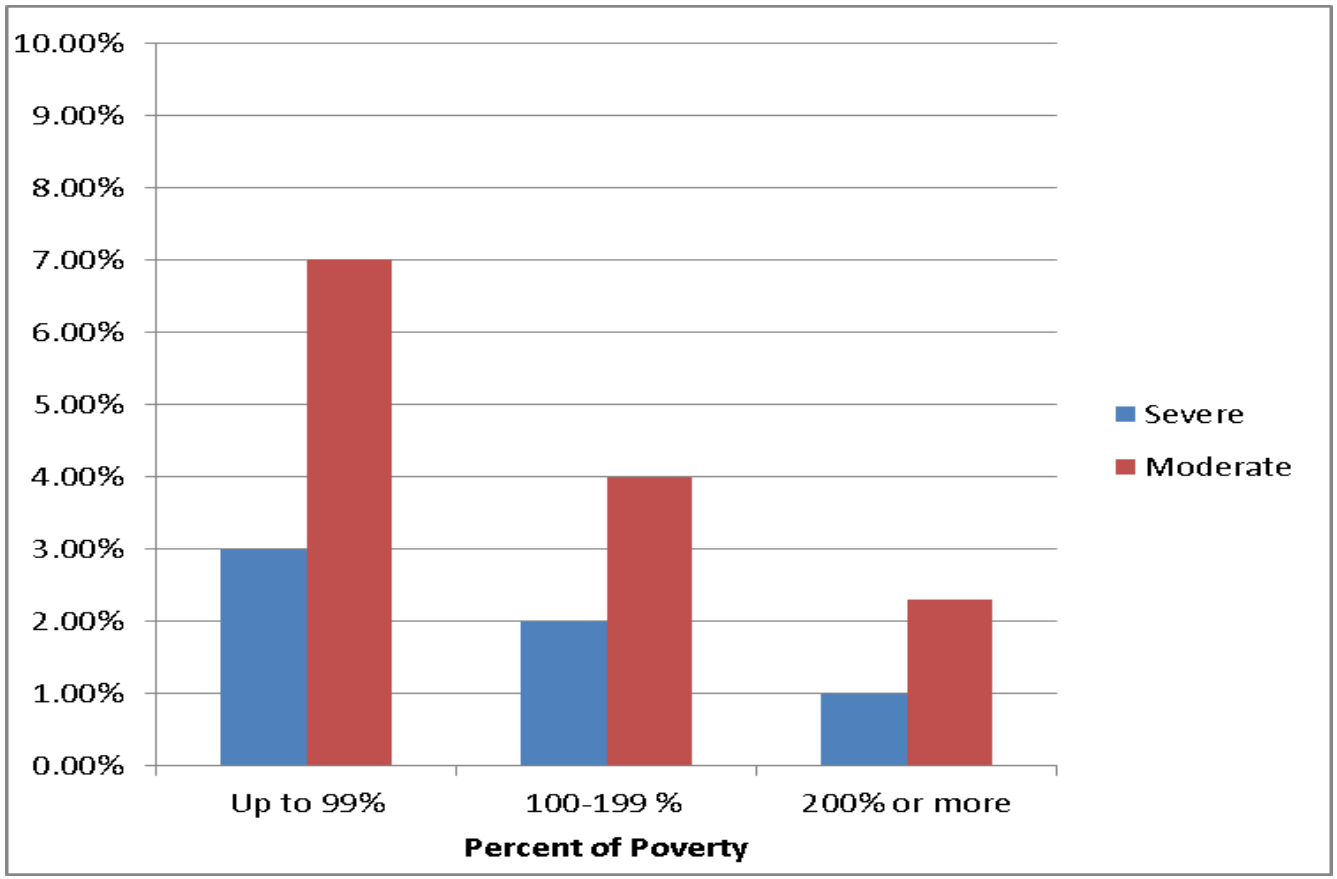
Peter J. Ashley, DrPH
HUD Office of Lead Hazard Control and Healthy Homes

Why is a housing agency involved in this health issue?

Potential Impacts of Unhealthy Housing

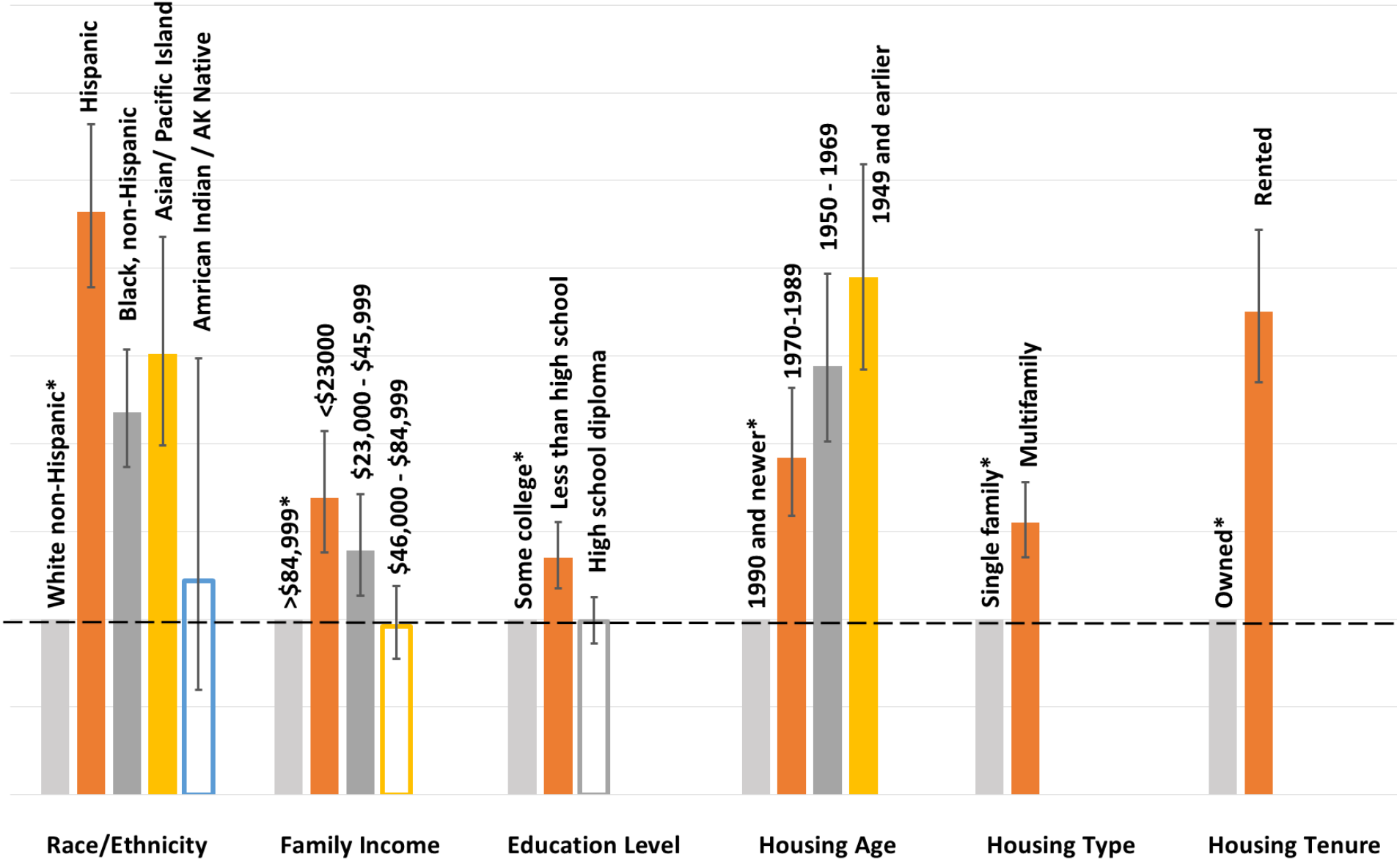


U.S. Homes With Moderate or Severe Physical Problems by Household Poverty Status (2013)



American Housing Survey, 2013

Odds Ratios for Cockroaches Seen Daily or Weekly by Demographic and Housing Characteristics (2011 American Housing Survey)



Addressing asthma triggers in the home is recommended in national guidelines on asthma managment.

National Asthma Education and Prevention Program (NAEPP) Guidelines for the Diagnosis and Management of Asthma

Effective asthma care must be comprehensive and include four key components:

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

NAEPP Guidelines: Recommendations on in-Home Control of Asthma Triggers

- Evaluate the potential role of allergens and irritants
  - Identify allergen and pollutants/irritant exposures
  - Persistent asthma: use skin or *in vitro* testing to assess sensitivity to perennial indoor allergens
- Advise patients to reduce exposure to allergens and pollutants/irritants
  - Multifaceted allergen control educational programs provided in the home setting can help patients reduce exposure to cockroach, dust-mite, and rodent allergens and, consequently, improve asthma control.

Multiple federal agencies have identified reduction of racial and ethnic asthma disparities as a national priority.

May, 2012

www.epa.gov/childrenstaskforce

President's Task Force on Environmental Health Risks and Safety Risks to Children

Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities

Asthma Disparities Action Plan Received a High Level Launch (May 31, 2012)

President's Task Force on Environmental Health Risks and Safety Risks to Children

Organization:

- Inter-agency task force co-chaired by officials from the EPA (Dr. Ruth Etzel, Office of Children's Health Protection) and the DHHS (Sandra Howard, Office of the Asst. Secretary for Health)

TF Mission:

- Identify priority issues of environmental health and safety risks to children that can best be addressed through interagency efforts
- Recommend and implement interagency actions
- Communicate to federal, state, and local decision makers information to protect children from risks

Priority Areas:

- Asthma Disparities
- Settings where children live, learn, and play (e.g., healthy homes)
- Potential impacts of climate change on children's health

Focus of the Action Plan to Reduce Racial and Ethnic Asthma Disparities

The focus of the plan is on: "*preventable factors that contribute to disparities in the burden of asthma*", including:

- Barriers to the implementation of guidelines-based asthma care:
  - Medical care factors
  - Physical and psychosocial environmental factors
- Lack of local capacity to deliver community-based, integrated, comprehensive asthma care
- Gaps in capacity to identify and reach children most at risk

Strategy 1: Reduce barriers to the implementation of guidelines-based asthma management

Priority Actions:

1.1 Explore strategies to expand access to asthma care services

- including: patient education, home interventions, medications, subspecialty services when needed

1.2 In health care settings, coordinate existing federal programs in underserved communities to improve the quality of asthma care

1.3 In homes, reduce environmental exposures

1.4 In schools and child care settings, implement asthma care services and reduce environmental exposures

Strategy 2: Enhance local capacity to deliver integrated, comprehensive care

Priority Actions:

2.1 Promote cross-sector partnerships among federally supported, community-based programs targeting children with a high burden of asthma.

- (e.g., tobacco control, obesity prevention, radon, healthy homes, weatherization, lead hazard control)

2.3 Conduct research to evaluate models of partnerships that empower communities to identify and target disparate populations and provide comprehensive, integrated care at the community level.

HUD Activities to Implement the Plan

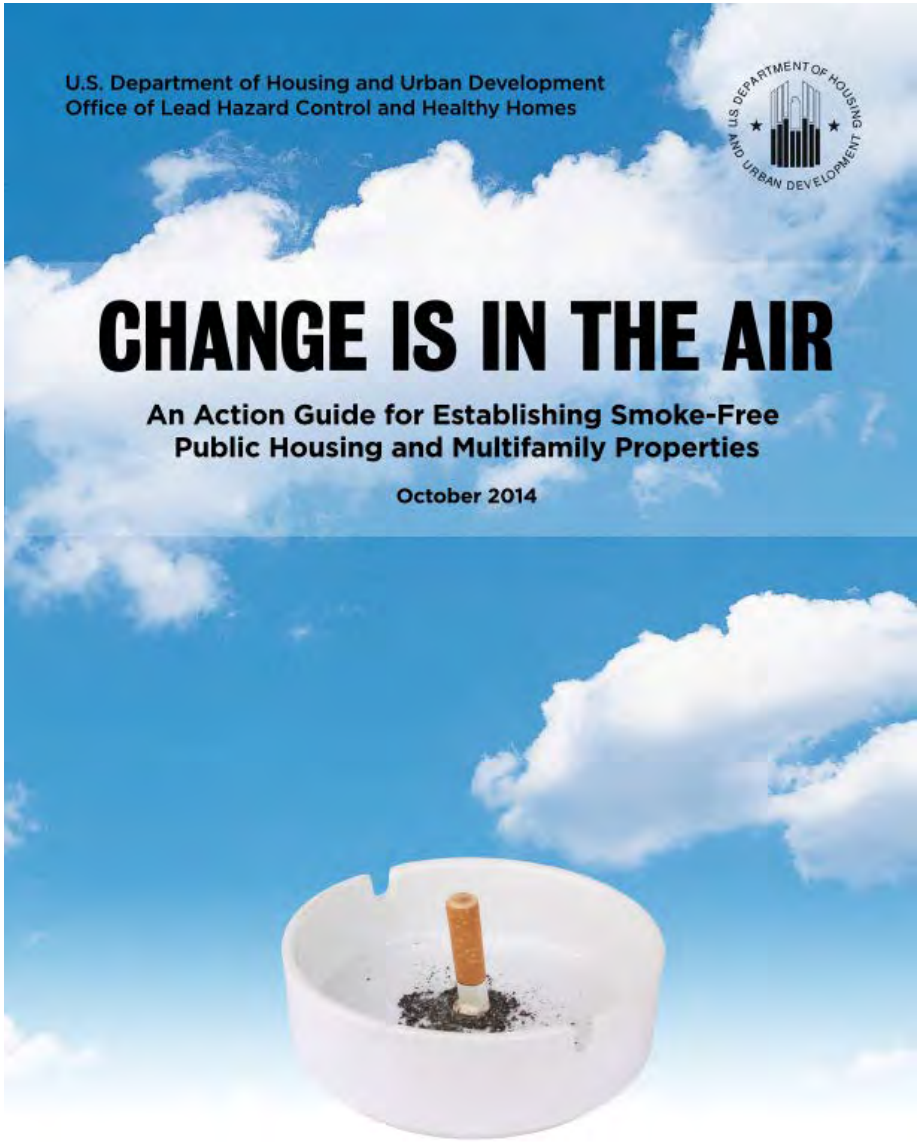
Sponsoring asthma summits

- 8 summits held starting with Cleveland in Oct, 2012 in coordination with federal partners (EPA, CDC/HHS) and have collaborated on several others

Promoting smoke-free multifamily housing

- Starting in 2009 HUD program offices issues notices encouraging adoption of SF housing policies (covering public housing and assisted multifamily housing)
- Published additional guidance on adopting SF policies
- Nov, 2015: published proposed rule to prohibit smoking in public housing

Sponsoring integrated pest management training

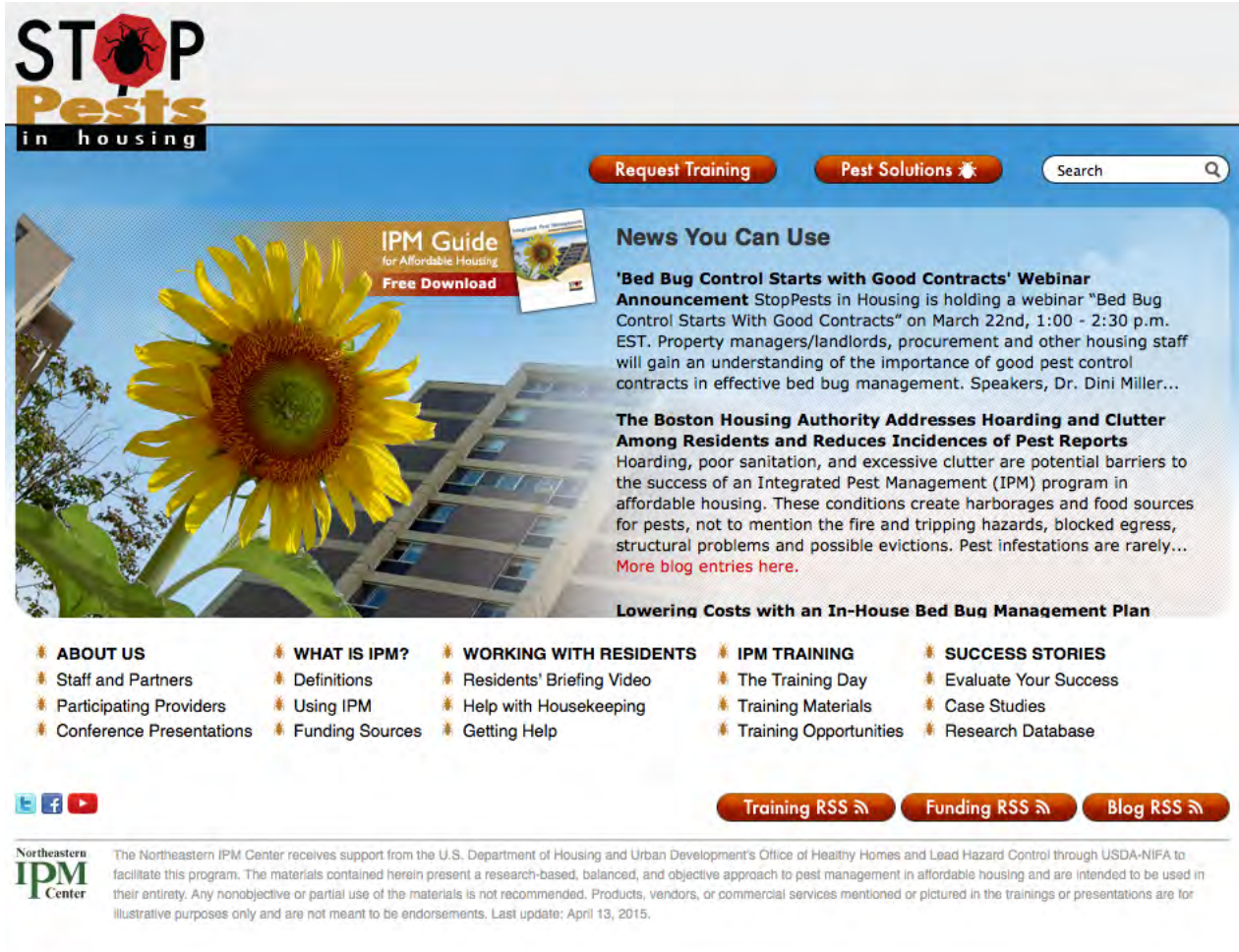

U.S. Department of Housing and Urban Development
Office of Lead Hazard Control and Healthy Homes
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
CHANGE IS IN THE AIR
An Action Guide for Establishing Smoke-Free Public Housing and Multifamily Properties
October 2014

StopPests in Housing

Your IPM Resource

StopPests is Funded by HUD via USDA to provide consultation and training to affordable housing providers to manage pests using integrated pest management (IPM). Contact StopPests for:

- In-house staff training “IPM in Multifamily Housing”
- Individual consultation and recommendations for challenging situations
- Training opportunities including recorded and live webinars and videos
- Up-to-date pest control information on StopPests.org and a blog and social media sites



In Summary: Reasons to Expand in-Home Asthma Interventions

- Recommended in national asthma management guidelines
- Exposure to residential triggers is an important contributor to asthma disparities
- Reducing asthma disparities is a national priority
- In-home interventions can improve asthma control and quality of life while reducing healthcare costs

Thank You!

The *Action Plan* is available at: https://www.epa.gov/asthma/coordinated-federal-action-plan-reduce-racial-and-ethnic-asthma-disparities

HUD Office of Lead hazard Control and Healthy Homes:
http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes

peter.j.ashley@hud.gov

The CDC 6/18 Initiative:

Promoting Public Health-Health Care Collaboration and Reimbursement of Preventive Asthma Control Strategies

National Asthma Control Program
Air Pollution and Respiratory Health Branch
September 2016

CDC Strategic Directions

Improve health security at home and around the world

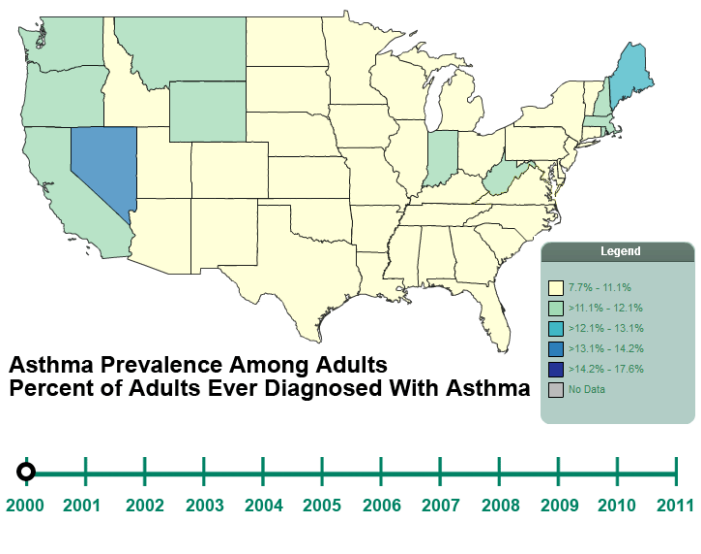
Better prevent the leading causes of illness, injury, disability, and death

Strengthen public health/ health care collaboration

3 Buckets of Prevention

Source: Auerbach J, *J Public Health Manag Pract*, 2016

Asthma's Impact on the Nation



- Over 22 million affected
- Costs ~$63 billion annually
- Higher prevalence: Black Americans (9.9%), Hispanics of Puerto Rican descent (14.6%), <100% of federal poverty level (10.9%)
- Asthma burden
  - 1.8 million emergency department (ED) visits
  - 439,000 hospitalizations
  - About 9 people die from asthma each day
- Burden can be reduced by controlling asthma

Sources: www.cdc.gov/asthma/most_recent_data.htm; Jang J et al., *Ann Allergy Asthma Immunol*, 2013; www.cdc.gov/asthma/impacts_nation/asthmafactsheet.pdf

Background

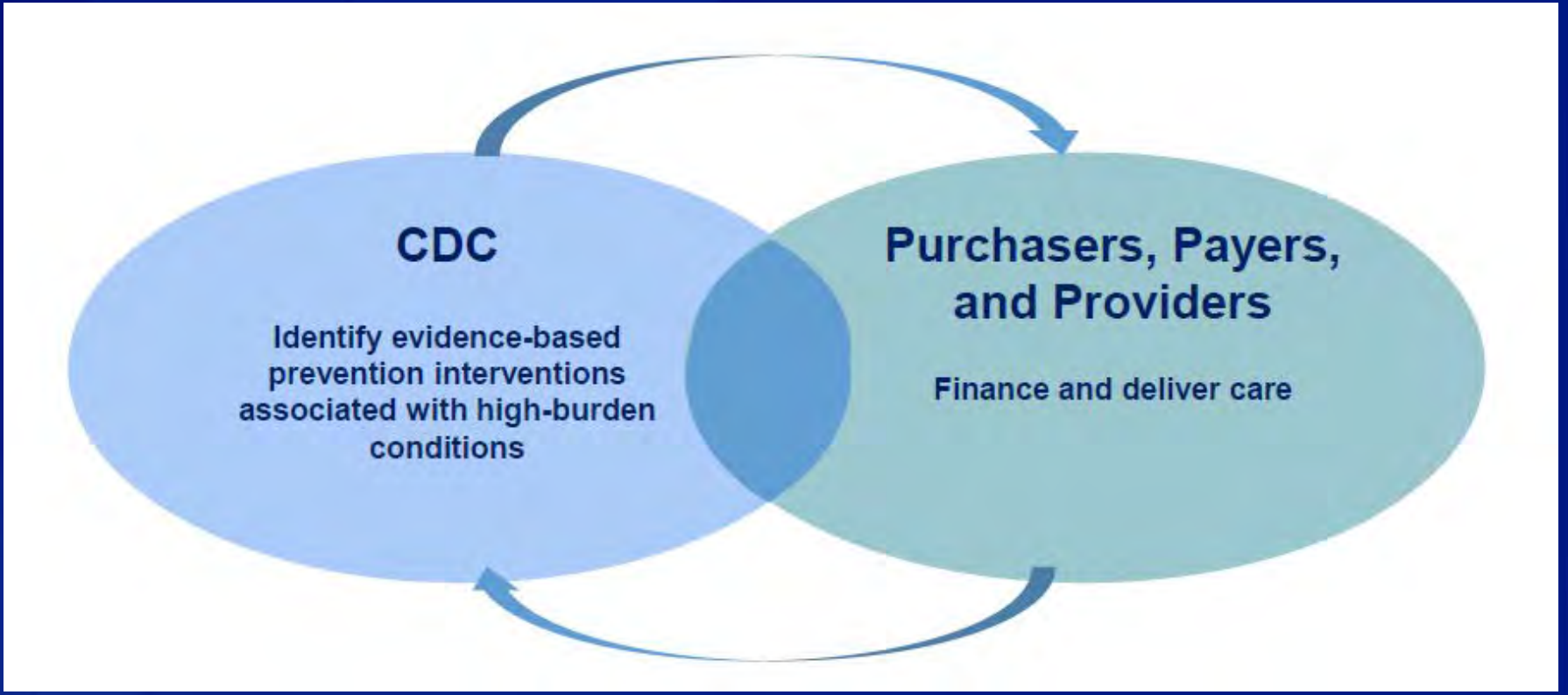
Comprehensive asthma control strategies can:

- **Reduce emergency department visits by as much as 68%**
- **Reduce hospitalizations by as much as 85%**
- **Show a short-term positive return on investment**

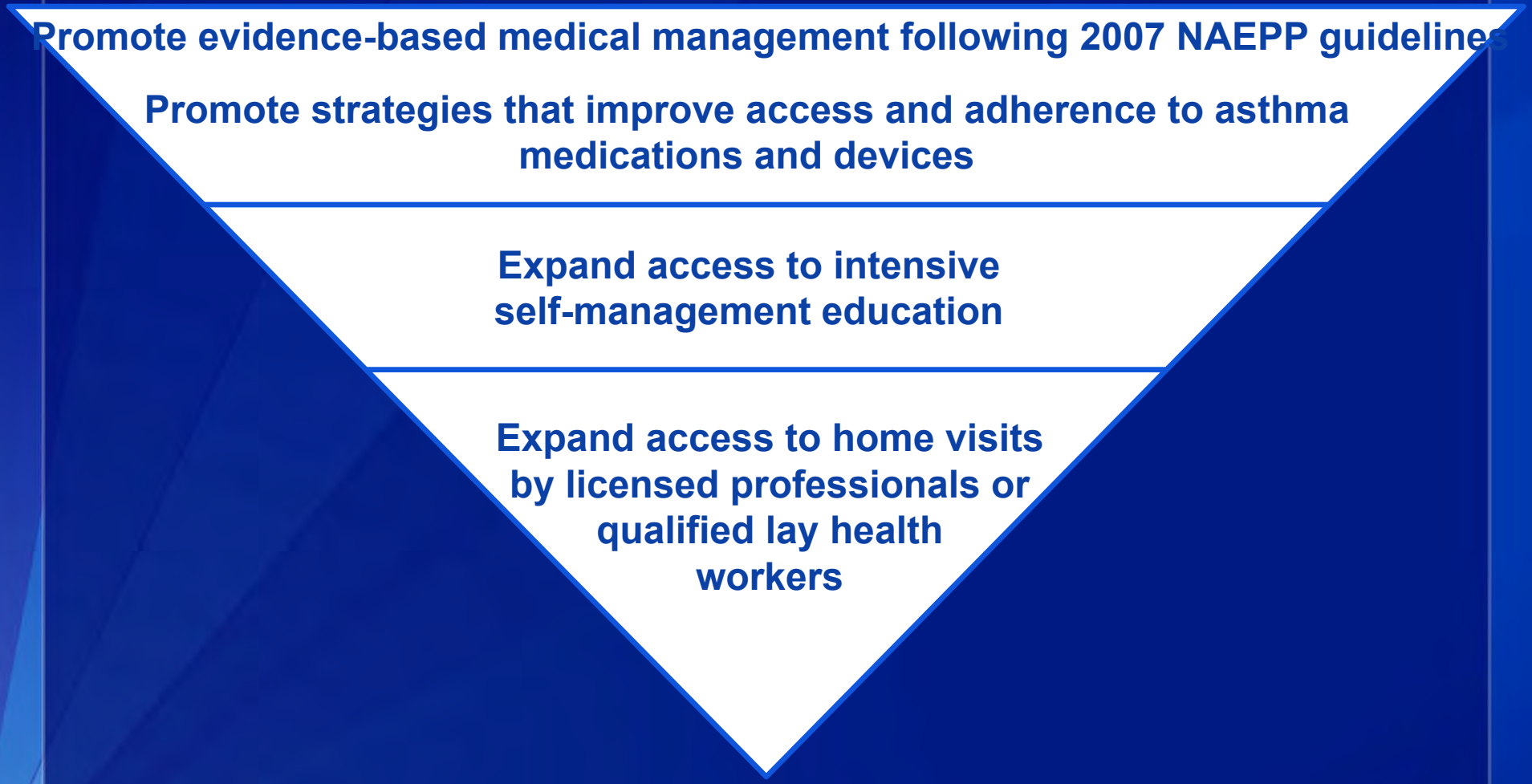
Sources: Woods ER et al., *Pediatrics*, 2012; Sibylle HL et al., *Pediatrics*, 2011; Nurmagambetov T et al., *Am J Prev Med*, 2011

Collaboration Within CDC

Promoting Collaboration Between Public Health and Health Care



Collaboration Within CDC to Engage Payers: Asthma Control Strategies



NAEPP, National Asthma Education and Prevention Program

Collaboration Within CDC to Engage Payers: Asthma Control Strategies

Key Accomplishments

- Established and published evidence base for this approach
- National Governors Association Paper "Health Investments That Pay Off: Strategies for Addressing Asthma in Children"
- CDC's National Asthma Control Program White Paper "Developing a Business Case for Asthma Services in Your State"

Lessons Learned

- Both cost and quality can be valuable to health plans
- Building on existing partnerships and infrastructure can facilitate progress
- Using health plan analytics can be helpful to identify those at high risk
- Targeting individuals at higher risk can yield a higher ROI

Visit the 6|18 Website

CDC.gov/SixEighteen

Evidence Summaries

Detailed summaries of the 6|18 interventions, based on scientific studies and expert consultations

FAQs

Answers to common questions about the 6|18 Initiative including goals, strategy, and the intervention selection process

Coming soon!

Additional Tools:
Readiness checklist
How to be a 6|18 Partner

Next Steps

- **Continue collaboration within CDC to engage payers**
- **Continue collaboration with external partners**
  - President's Task Force on Environmental Health Risks and Safety Risks to Children
    www.epa.gov/childrenstaskforce
  - National Center for Healthy Housing
    www.nchh.org/program/equippingstatesforreimbursement.aspx
  - State asthma programs
    www.cdc.gov/asthma/contacts/default.htm

Next Steps

- Create, disseminate, and regularly update resources for states and other partners
- Identify and disseminate other relevant documents and trainings regarding asthma-related reimbursement

Acknowledgments

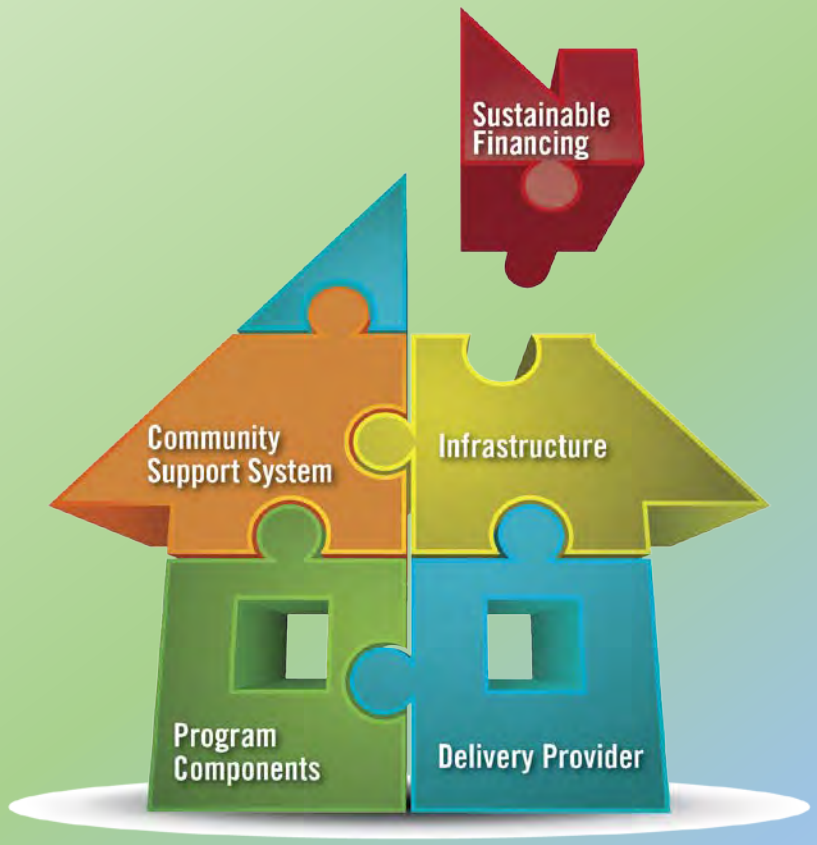
CDC National Asthma Control Program

Elizabeth Herman
Joy Hsu
Tursynbek Nurmagambetov
Lillianne Lewis
Natalie Wilhelm

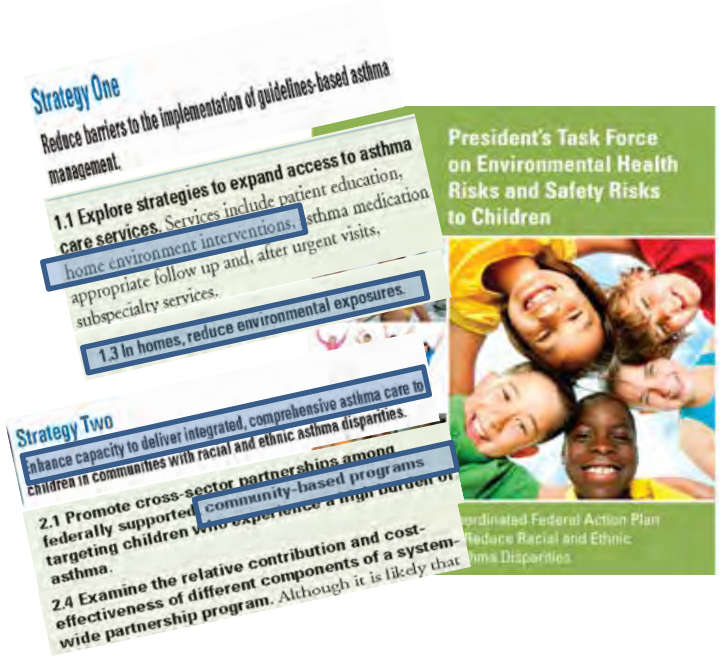
CDC Office of the Associate Director for Policy

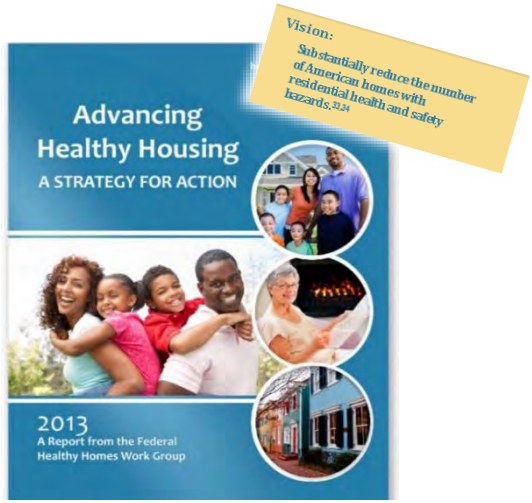
Laura Seeff
Jocelyn Wheaton
Kristin Brusuelas
Nick Di Meo
Christa Singleton

For more information please contact:
National Asthma Control Program
4770 Buford Highway, MS F-60
Chamblee, GA 30341
Telephone: 770-488-3700
Visit: www.cdc.gov/asthma



Heidi LeSane
U.S. Environmental Protection Agency
Region 4





Foundation: Effective asthma care must be comprehensive & address the environment & self management skills

Focus: Environment, in-home asthma care, local capacity

***Equip** health, housing, environmental and health insurance **programs to** <u>effectively support</u> **the** delivery, infrastructure and/or sustainable financing **of environmental asthma interventions at** home and school.*

Our Approach:

***Equip 300** health, housing, environmental and health insurance **programs to effectively support the** delivery, infrastructure and/or sustainable financing **of environmental asthma interventions at** home and school.*

Influence Health Plans, State Medicaid & Key Stakeholders

Equip Programs to Act

Stakeholders Who Drive Change within State

Key Interests Represented

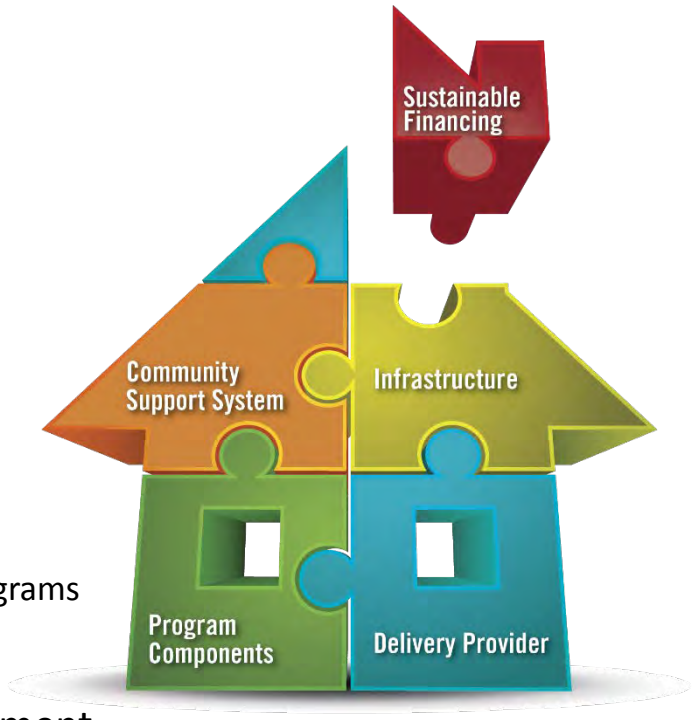
- **People paying for services**
  - State Medicaid/Legislature
  - Health Plans
- **People delivering services**
- **People supporting and driving change**
  - Regional health, housing and environment

Key Considerations for Securing Sustainable

- Delivery Provider
  - **Community Health Worker**
  - Nurse, RT, other licensed practitioner
- Program Components
  - Education
  - Environmental assessment
  - ***Intervention/Remediation***
- Community Support System & Infrastructure
  - Link with clinical care
  - Connection to housing & environment programs

❖ Population served

❖ Program Outcomes & Return on Investment




ASTHMACOMMUNITYNETWORK.ORG
Communities in Action
Share • Learn • Connect
username
Not a member? Join Now »
Forgot Your Password? »
OUR NETWORK TODAY
our newest program
Total Programs in Action: 999
Total Members in Action: 3350
HOME
ABOUT
TOOLS
CONNECT
EVENTS
site search...
SHARE
Find a Program
Request a Mentor
Discussion Forum
Blog
Conference Materials
Videos
Podcasts
Webinar Archives
Events Calendar
Resource Bank
"The Network is a great place for fostering collaboration. Program profiles offer me an easy way to stay informed and find opportunities to build new partnerships!"
Amanda Reddy, NCHH
Do Network Members Have Up to Date Information for Your Program?
>> Manage Your Program's Profile
Manage Your Program's Profile!
When was the last time you logged in to your program's profile? Make sure your profile is up to date so that you can connect with other programs to collaborate on activities this summer. Then invite others to become site members so that they also can enjoy the benefits of the Network! Don't forget that as a member, you can find helpful resources that can support asthma programs in your community—including webinars, podcasts, and
NEW RESOURCES
6/1/15 Making the Case for Collaborative CHI
6/1/15 The Daily Show: Along Came Pollen
5/15/15 Tribal Healthy Homes Network
>>more from the Resource Bank
>>post to the Resource Bank

Value of Asthma Home Visits

In-home care can reduce the costs of care and improve health outcomes for people with poorly controlled asthma.

Learn More About:

- Evidence Base
- Program Results
- Asthma Home Visits for Health Plans

Learn More

Understanding the Options

Health policy change has created many options for financing in-home asthma care.

Learn More About:

- Braided Funding
- Medicaid Financing
- Health Plan Financing
- Social Impact Financing
- Housing Financing

Learn More

Making Your Case

Programs need to articulate the value their in-home asthma care services can deliver to the community, funders and partners.

Learn More About:

- Your Value Proposition
- Data Collection and Evaluation

Learn More

Building a Workforce

Training staff in evidence-based in-home asthma care is critical. Community health workers (CHWs), who provide culturally appropriate, family-based care, are good candidates.

Learn More About:

- Training & Credentialing
- Implementing CHW Programs
- Home Visit Models

Learn More

Strategies for Reimbursement

Effective efforts have followed common strategies to secure Medicaid coverage for in-home asthma care.

Learn More About:

- Medicaid Reimbursement Bill Codes
- Medicaid Reimbursement at the State Level
- Preparing for Reimbursement
- Snapshot of Programs

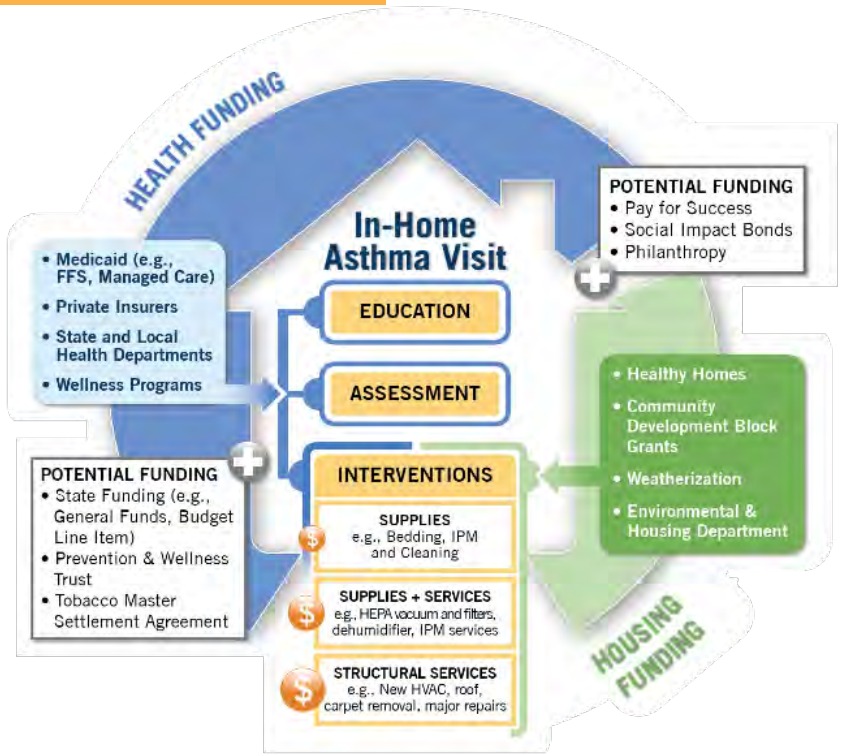
Learn More

Resources are bucketed for ease of use and to highlight key topic areas.

Understanding Sustainable Financing Options

Bringing multiple streams of funding together to cover the full spectrum of in-home asthma care is often referred to as "braided funding."

The illustration here represents ways that funding for home-based asthma care services can be combined to cover critical in-home asthma care needs.



- Promote coverage of in-home asthma care services by Medicaid programs and private insurers (summits held in: Cleveland, Kansas City, Baltimore, Denver, Philadelphia and Los Angeles .
- HUD lead with assistance from EPA, CDC, and HHS Asst. Sec for Health.
- EPA is active collaborator and participant (highlights work from “local champions” and organizations that have made progress on the issue).
- Materials from summits are posted on EPA’s Asthma Community Network website: www.asthmacommunitynetwork.org/resources/conferences/

Southeast Regional Asthma Summit and Healthy Homes Environmental Exposures Symposium

May 17-18, 2016

Federal Initiatives and Perspectives

Discussion

North Carolina
State of the State

Neasha Graves, Moderator

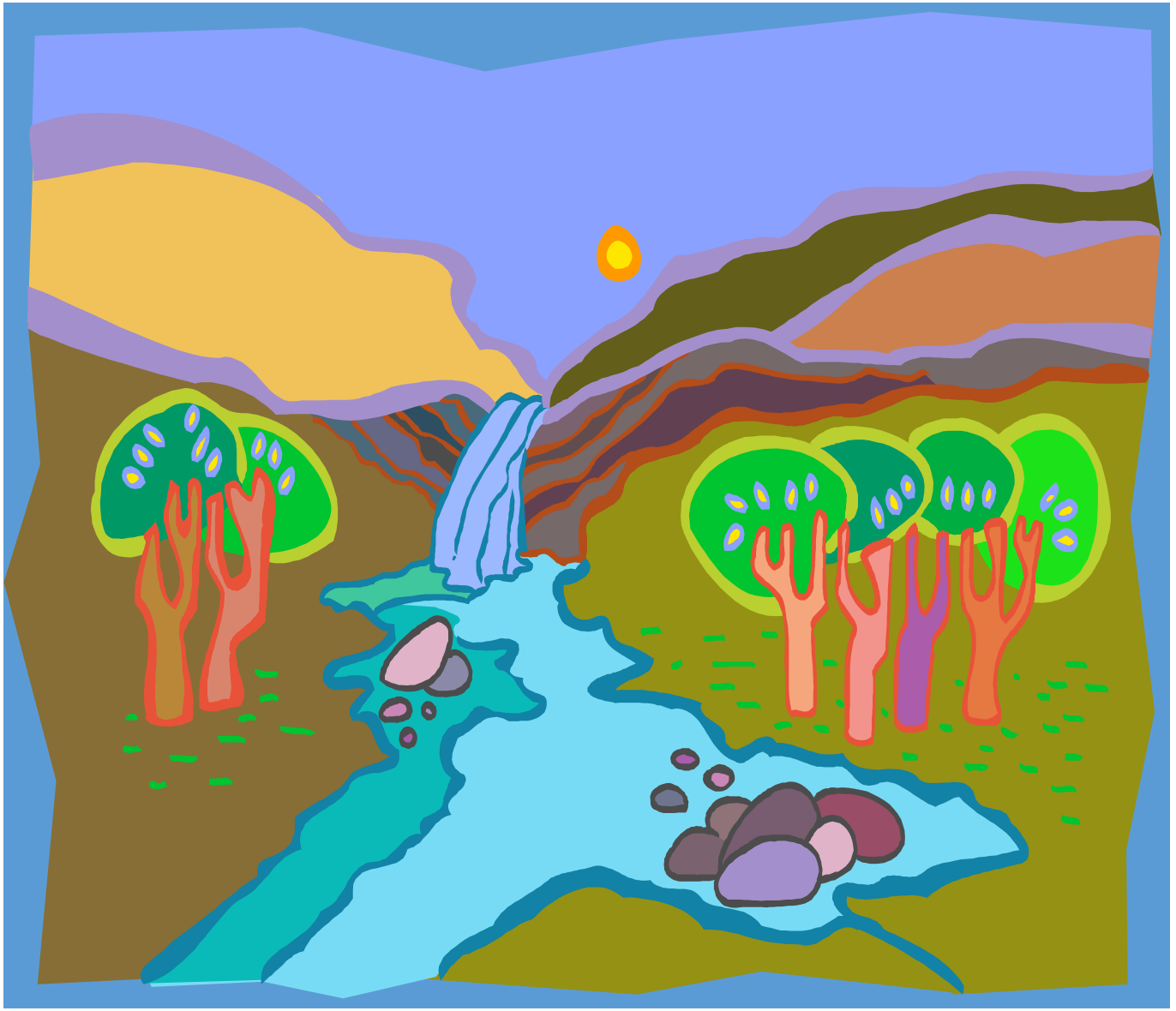
Reducing Asthma among Rural and Underserved Populations in Eastern NC

Greg Kearney, DrPH, MPH, REHS
Assistant Professor
East Carolina University,
Department of Public Health, Brody School of Medicine

Theresa Blount, RN, BSN, AE-C
Asthma Coordinator, Pediatric Asthma Program
Vidant Medical Center

North Carolina Forum on Sustainable In-Home Asthma Management
North Carolina – State of the State and Open Discussion

William Friday Center - UNC
September 13, 2016



Take a few seconds to reflect on “The River” story

ISSUE BRIEF

Is Health Determined by Genetic Code or Zip Code? Measuring the Health of Groups and Improving Population Health

Penelope Slade-Sawyer

Maintaining the optimal health of all North Carolinians is integral to the overall well-being of the state. It is not enough to have policies, initiatives, and reforms created and led by experts in health and health care. To move towards a culture that appreciates and promotes optimal population health, we also need assistance from other arenas. Data continue to suggest that domains such as education, housing, and income may be just as important, if not more important, than determinants that are usually associated with health outcomes. Thus North Carolina's leaders, professionals, and policy makers need to adopt shared responsibility for our population's health by taking a health-in-all-policies stance. Research to expand our understanding of individual and group actions that contribute to health outcomes, collaboration of partners across diverse sectors to implement evidence-based initiatives, and creative thinking and planning for future workforce needs are a few important actions. Together, these efforts can help to shift our long-standing focus on "disease care" to an upstream approach that ultimately reduces health care burdens and improves population health.

During a recent North Carolina meeting of academic, clinical, and public health professionals, a participant asked an eye-opening question: "So what exactly *is* population health?" If a question like this is asked—rhetorically or not—among a group of experts who have dedicated their professional lives to promoting and advancing good health, how well do those in other fields understand the importance of population health? This issue of the NCMJ is dedicated to explaining what population health is and why it is important.

What Is Population Health?

The health of the population is important, and not just for its own sake. People want to live full and satisfying lives at work, at home, and at play. Businesses need workers to produce goods and services. North Carolina needs vital residents who are capable of contributing to the state's economic engine. Fulfillment of these needs requires a foundation of good health—not just good health for some people, but good health for the entire population.

The term *population health* is being used more frequently today, and it has a variety of meanings. Sometimes it means the measure of a total population's health outcomes; other times, it may mean the field of study that examines the factors that contribute to the health outcomes of a population. Sometimes it refers to the health of a subpopulation—for example, the group of people served by a hospital, a health center, or a medical practice. There is no precise, widely used definition of the term population health, which contributes to the general uncertainty about the meaning of the concept.

In 2003 Kindig and Stoddart proposed that population health be defined as, "the health outcomes of a group of individuals, including the distribution of such outcomes within the group," and they argued that, "the field of population health includes health outcomes, patterns of health determinants, and policies and interventions that link these two" [1]. This definition helps us see that it may be misleading to look only at health outcomes for the state as a whole. The urban/rural, rich/poor divides in North Carolina mean that health determinants vary throughout regions of the state, and understanding those patterns of health is necessary to understand and improve the health of North Carolinians. This issue of the NCMJ therefore uses a broad definition of population health that encompasses not only measurement of overall population health but also analysis of health disparities.

Why Does Population Health Matter?

Certainly, the health of North Carolina's population was on the front burner in the 2014 regular legislative session of the North Carolina General Assembly. Legislators rarely use the term population health, but the concept underlies their discussions of medical coverage, costs, and Medicaid reform. Only with improvement in the health of the state's

Electronically published November 7 2014.
Address correspondence to Ms. Penelope Slade-Sawyer, North Carolina Division of Public Health, 5605 Six Forks Rd, Raleigh, NC 27609 (Penelope.Slade-Sawyer@dhhs.nc.gov).
N C Med J. 2014;75(6):394-397.
0029-2559/2014/75604

References:
Slade-Sawyer P. ,2014. North Carolina Med Journal
TIME Wednesday, Jan 06, 2010

Our Story

- The Eastern Carolina Asthma Prevention Program (ECAPP) developed as a community based, collaborative research project in 2012 between an environmental public health professor at East Carolina University and Peds Asthma Program at Vidant Medical Center in Greenville, N.C.

Our Goal

- Reduce asthma and asthma symptoms among rural, low income families that have children with moderate to severe asthma (age 5-17 years) in Eastern North Carolina.

What We Do

- Focus on children (5-17 years) with moderate to severe asthma.
- Our emphasis is on education and prevention with a research component.
- We use targeted, multi-component intervention strategies – Kings County, Seattle WA model.
- Follow NHLBI guidelines to reduce environmental exposures
- Provide guidance and resources to help families that have children with asthma.
- Work to improve respiratory health, reduce emergency department visits of children with asthma in Eastern N.C.
- Conducted over 50 individual home-based visits - Reference:

Kearney GD, Johnson LC, Xu X, Balanay JA, Lamm KM, Allen DL. Eastern Carolina asthma prevention program (ECAPP): An environmental intervention study among rural and underserved children with asthma in Eastern North Carolina. Environ Health Insights. 2014;8:27-37.

ECAPP™
Eastern Carolina Asthma Prevention Program

Our Target Area

- The 29-County region in eastern North Carolina; Our primary emphasis has been on African-Americans in rural and underserved areas.

Funding Sources:

- 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)

Recent Additions to ECAPP

- Development of the Eastern Carolina Asthma Consortium (ECAC)
- Sampling Indoor Environments

Poverty's Enduring Tradition in Rural North Carolina:

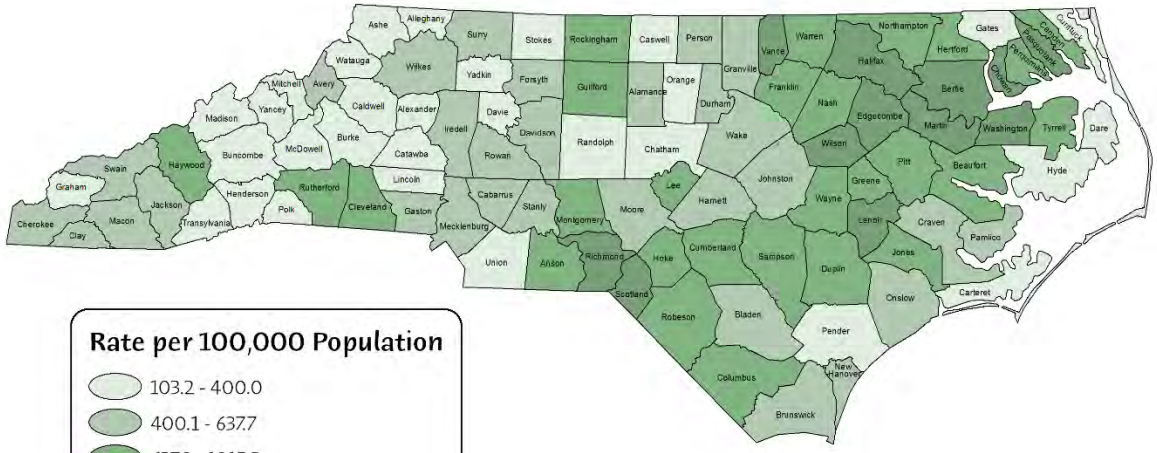
How Do We Respond?

Billy Ray Hall

Hall BR, Popular Government Spring/Summer, 2003
http://sogpubs.unc.edu/electronicversions/pg/pgspsm03/article3.pdf

Fewer than 49% of rural NC are homeowners

North Carolina
2014 Emergency Department Visits with the Primary Diagnosis of Asthma, by County



Rate per 100,000 Population

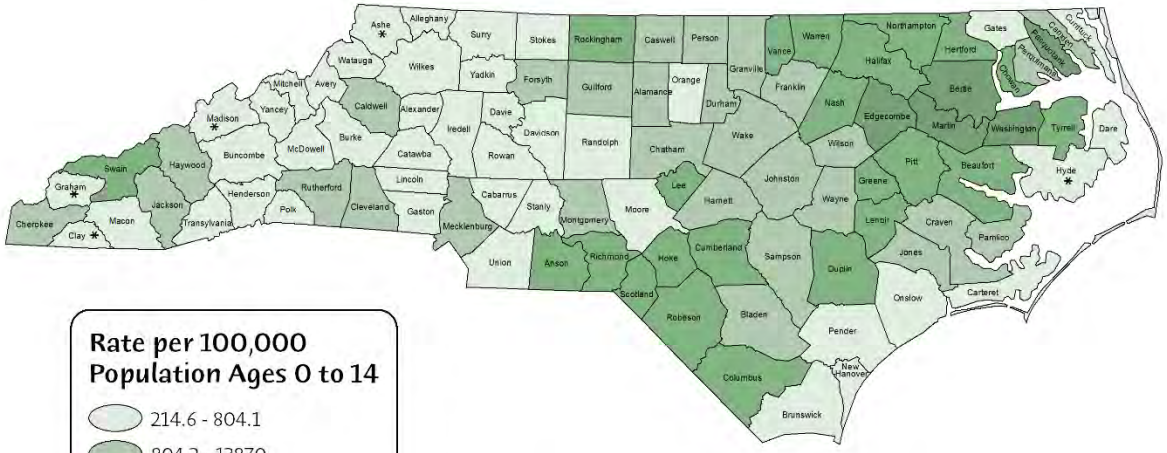
- 103.2 - 400.0
- 400.1 - 637.7
- 637.8 - 1015.3
- 1015.4 - 1696.0

Source: North Carolina Hospital Discharge Data
Data includes only North Carolina resident data, served in North Carolina hospitals. It is provisional data and is subject to change.

August 2016

Public Health
HEALTH AND HUMAN SERVICES

North Carolina
2014 Emergency Department Visits with the Primary Diagnosis of Asthma for Ages 0 to 14, by County



Rate per 100,000 Population Ages 0 to 14

- 214.6 - 804.1
- 804.2 - 1387.0
- 1387.1 - 2218.5
- 2218.6 - 3358.2

Source: North Carolina Hospital Discharge Data
Data includes only North Carolina resident data, served in North Carolina hospitals. It is provisional data and is subject to change.

*Rates based on small numbers (fewer than 10 cases) are unstable and should be interpreted with caution.

Public Health
HEALTH AND HUMAN SERVICES

August 2016


NEWS 12
CHANNEL

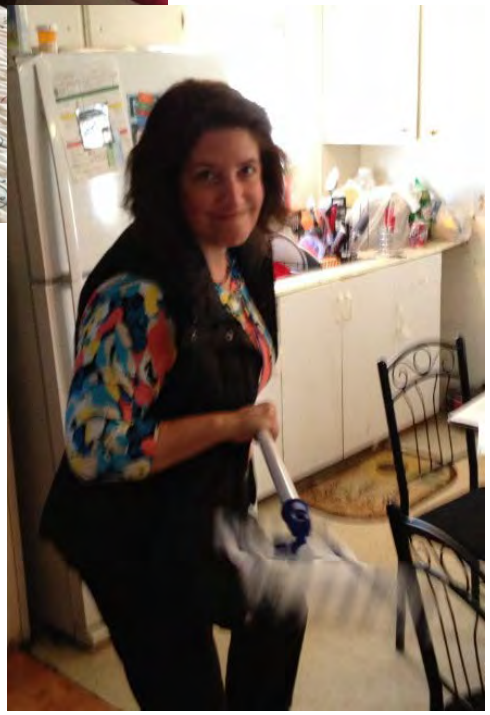
“Environmental” Products to reduce Indoor Allergens

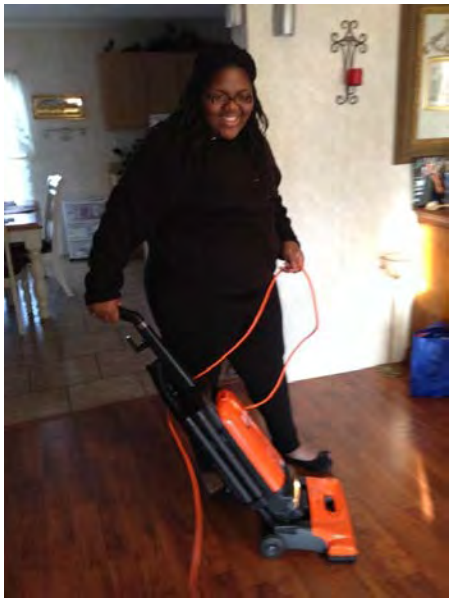
Products:

- Commercial grade Vacuum with HEPA filter
- Non-allergen mattress /pillow encasings (fit to child’s bed)
- Toxic “free” cleaning products
- Non-odor, non-toxic, pesticides and rodent baits*
- Food storage containers

*In some cases commercial pesticide/cleaning services were used

Intervention: Personalized Instructions ,Education and Demonstrations on Using Products





- **Reduced cost savings** –
- Our cost $440-$500 per family for 2 scheduled home visits (included all products);*
- Avg ED visit costs = $691 and In-patient stay = $7,987**

- Other benefits: Fewer visits to ED, Physician office visits; fewer missed school and work days and less financial and emotional burden on child and family

* Does not include vacuum cleaner; For vacuum cleaner, add ~$170 (includes HEPA filter bags)

**Hoppin P, Jacobs M, Sillman L. Asthma Regional Council (ARC). Investing in Best Practices for Asthma: A Business Case. Available from: http://hria.org/resources/reports/asthma/best-practices-for-asthma-2010.html.

Eastern Carolina Asthma Prevention Program (ECAPP)
Average Products and Service Costs (1 family/child enrolled for 6 months) for 2 home visits (12/2015)

Product/Service	Count	Cost
Travel (home visit)	20 miles X 2 Trips X.59/mile	$23.60
Staff Time - 1 nurse & 1 Env. Health Specialist	2 staff @ 3 hrs. (includes benefits)	$300.00
Dust Mite Mattress encasing (full size)	1	$31.97
Dust Mite Pillow encasing	1	$4.95
Toxic-Free Cleaning Products		
Floor cleaner	1	$3.00
Mice baits	8 (box)	$7.99
sponges	8 (box)	$1.19
microfiber mop	1	$7.50
Roach baits	5 (box)	$4.50
Lysol	2 (cans)	$2.25
Dust cloths	3 (pouch)	$3.00
Furniture polish	1 (can)	$3.50
Counter-top Disinfectant	1 (can)	$1.50
In-home Tests		
Exhaled Nitric Oxide Test (eNO) for inflammation	2 (times)	$19.00
Spirometry Test	2	N/C
Mouth Pieces for eNO	2	$1.60
Mouth Pieces for spirometry	2	$1.80
Nose clips	2	$0.60
Asthma Educational Material Printing Costs	1 packet	$7.50
Gift Card (incentive)	1 store card	$20.00
Total Costs		**$ 443.65**

Kennedy, K. Business NC, July 2016.

Theresa Bloure of Vidant Medical Center, Pat Vail and Dr. Greg Kearney of East Carolina University (right) visit 9-year-old Kameron Hudson at his home in Farmville. Kameron has asthma and his ongoing treatment is supported, in part, by Brody Brothers Foundation funds.

Innovative ideas

Private funding supports research to address disease in eastern North Carolina.

By Kathryn Kennedy

A recurring, private funding source for research at East Carolina University's Brody School of Medicine is paying dividends for the university by allowing professors to explore new areas in their fields and attract significant federal and industry grants.

Established in 2005, "Brody Brothers" research funding has provided more than $1.1 million over time to support work related to diseases that most impact the lives of North Carolinians in the eastern part of the state. It's one of several ways the Brody family of eastern North Carolina continues to help the medical school achieve its mission of improving the health status of the region's residents.

"The availability of these funds affords ECU doctors and researchers an opportunity to further study innovative ideas and launch new research," said Hyman Brody, who reviews the proposals with cousin David Brody and a team of researchers from the medical school.

"There is a lot of quality research going on at the school," remarked David Brody. "There have been many important contributions to the science and improvement of health generated by our faculty."

The Brody Brothers Stewardship Committee approved approximately $331,600 for the 2015-16 academic year to be divided among 11 grant proposals. Projects to earn funding this cycle included research related to cancer, diabetes, cardiovascular disease and depression.

The awards range from $20,000 to $45,000. But in an increasingly competitive funding environment, so-called "seed grants" have become essential to attracting larger awards from agencies such as the National Institutes of Health (NIH) and the National Science Foundation.

"With many of the major funding mechanisms out there, you get two tries – a submission and a resubmission," said Dr. Bob Lust, chair of physiology at Brody and a member of the proposal review team. "There's more pressure than ever before to be as competitive as possible on the first attempt."

Lust said the Brody Brothers grants enable researchers to gather preliminary data to strengthen their proposals, or to explore a new idea.

Dr. Myon-Hee Lee, associate professor in ECU internal medicine's Hematology/Oncology Division, knows firsthand how seed funding can aid research. Lee applied in 2013 for an NIH grant to support his investigation into how tumors develop and associated therapeutic targets for cancer patients.

By studying systems in the *C. elegans* worm, Lee's research team identified a key regulator, PUF-8, that suppresses tumor formation. He wants to learn more about how it relates to the organism's regulatory system. The NIH reviewers gave Lee high marks on his proposal, but it wasn't funded. "I have to generate new data to resubmit," he said. "And it takes funding to do that."

Lee's resubmission was successful, and he credits the Brody Brothers grant with enabling him to make a stronger case. He was notified in 2015 that the NIH would fund his work up to $367,275.

The Brody family's support also is making a world of difference for 9-year-old Kameron Hudson of Farmville.

Kameron has asthma – the number 1 reason for school absenteeism in the United States. One in 10 American children suffers from asthma, and eastern North Carolina has higher hospitalization rates for asthma patients compared to the rest of the state. That's why faculty such as Dr. Greg Kearney of ECU's Department of Public Health are partnering with Vidant Medical Center's Pediatric Asthma Program to conduct community-based interventions that provide in-home visits and connect families to resources.

"Before we got in this program, Kameron was always having problems breathing," recalled Jennifer Goss, Kameron's mother. "He had three or four asthma attacks every week. Some days he was using his rescue inhaler every four hours."

Kameron's course of treatment involves wearing a portable air sampling device at home and at school for three days. The filter inside can later be examined to detect possible triggers in his environment such as metals, pesticides, tobacco smoke or mold.

Kearney said this research is unique because similar studies haven't occurred in rural environments.

"This Brody grant enables us to back up and look at biomarkers and determine what's contributing to these kids' asthma," said Kearney. "It helps us ramp up education on how to take their medications, how to identify asthma triggers and how to self-manage their asthma. And it allows us to provide environmental supplies like mattress encasements, HEPA vacuums and non-toxic cleaning supplies ... so we can reduce the asthma triggers in their homes."

"Now he's breathing so much better and his skin is clearer," Goss said. "He loves going to school."

While the Brody family is pleased with the impact of their endowment, they also know much more can be done.

"If we want to continue to attract these top doctors and researchers, we need to be competitive with funding for this work, and open our pocketbooks and give back," said Hyman Brody. "The current dollars from this fund are great, but every time we do the grant review many fabulous proposals do not receive funding as there is only so much to go around."

Anyone interested in supporting research at the Brody School of Medicine should contact Kathy Brown at 252-744-6265 or brownka@ecu.edu.

David and Hyman Brody visit outside the Brody School of Medicine at East Carolina University. The Brody family was among the earliest supporters of medical education at East Carolina and improving the health status of citizens in the East.

Strengths & Challenges

What worked

- Reduced ED visits and unscheduled doc visits; increase in med compliance
- Case workers - reflective of population (caring and supportive)
- Continuous 2 week follow up calls

Challenges

- Some behavioral changes, difficult or impractical (housekeeping; washing hot water; smoking in home)
- Rental Housing and Landlords issues – Majority are renters
- Sustainability
- Access to resources - pest control, carpet cleaning and mold removal
- Working with physicians that needed to be educated about FeNo testing and new technology

An Upstream Approach to a Downstream Problem

- Strategies for improving indoor environmental quality must go beyond asking household members to take environmental actions (Kreiger et al., 2005)
- Connect family with available community resources
- Make Affordable Housing, Affordable.
- Fund programs that go beyond looking under the “urban lamp post”
- Physicians Medical Training -emphasis on social determinants of health (work, play, home)
- Policies for Reimbursement on Products, Home-Based Visits; include Health Departments (EH and a community nurses)
- Develop Policies to Giving EH in CHD authority to conduct IAQ investigations

References

- Hall BR, Popular Government Spring/Summer, 2003. Retrieved August 31, 2016 from http://sogpubs.unc.edu/electronicversions/pg/pgspsm03/article3.pdf

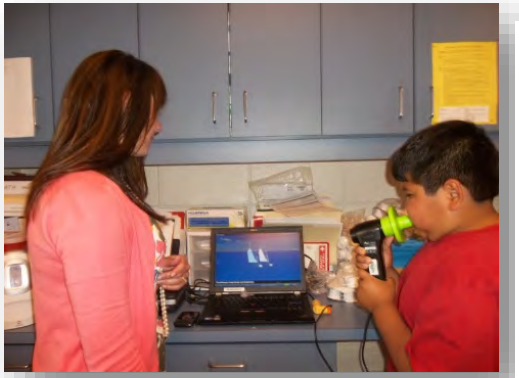
- Kearney GD, Johnson LC, Xu X, Balanay JA, Lamm KM, Allen DL. Eastern Carolina asthma prevention program (ECAPP): An environmental intervention study among rural and underserved children with asthma in eastern North Carolina. *Environ Health Insights*. 2014;8:27-37.

- Kennedy, K. Business NC, July 2016. Research Innovative Ideas: Private Funding Supports Research to Address Disease in Eastern N.C.

- NC Department of Public Health and Human Service. 2016. Asthma in North Carolina.

- TIME magazine. Wednesday, Jan 06, 2010. Retrieved August 31, 2016 from http://content.time.com/time/magazine/article/0,9171,1952313,00.html

- Slade-Sawyer P. Is health determined by genetic code or zip code? measuring the health of groups and improving population health. *N C Med J*. 2014;75(6):394-397. doi: 75604 [pii].



Regional Asthma Disease Management Program

Population Based Health Care

Melinda Shuler, BSBA, RCP, HHS, AE-C
Regional Clinical Supervisor/Principal Investigator
Asheville, NC


Cracker Barrel
Old Country Store


Good Work!

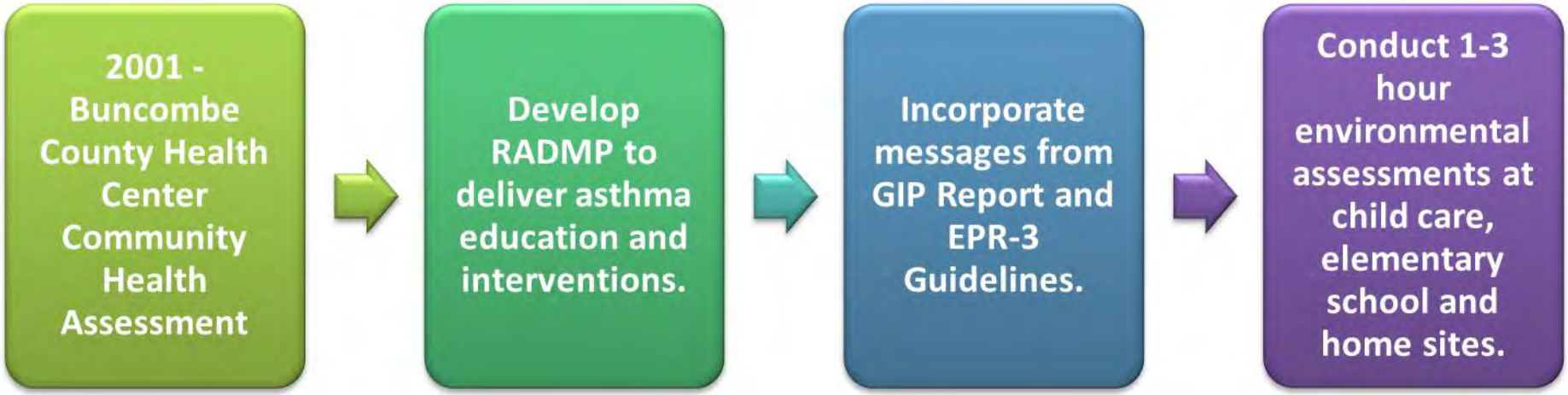

Chick-fil-A
DRIVE-THRU
BREAKFAST
PEACH MILKSHAKES
ARE BACK
CLOSED SUNDAY


EBLEN
Charities

- **Location: Asheville, North Carolina**
- **Type of Program: Non-profit Community Health System**
- **Service Area: 21 counties in Western North Carolina, including the Eastern Band of the Cherokee Indians**
- **Population Served: Remote, rural; Urban; Latino and Slavic communities**

Building the System

Conduct Needs Based Planning:



Building the System

Focus on Resource Strategy at Every Step

- ***Utilize Community Partnerships:***
  - Faith-based organizations
  - WNC School systems
  - WNC Child care centers
  - Charitable community partners

- ***State Partnerships:***
  - NC Division of Public Health
  - NC Asthma Program
  - Asthma Alliance of NC

- ***National Partnerships:***
  - National Heart, Lung, and Blood Institute
  - Asthma Allergy Foundation of America
  - National Environmental Health Association
  - National Center for Healthy Housing

Our Typical Patient

- Uninsured or underinsured
- Poor socioeconomic status
- Average patient age 8
- Variety of ethnic groups
- Single parent home

Patient Referral

- Primary Care Provider
- Hospitalist
- ED Physicians
- Specialist
- School Nurses
- School Social Worker
- Satellite clinics

Clinical Assessment

- Lung Spirometry with pre/post bronchodilator
- FeNO (a measurement of inflammation by assessment of nitric oxide concentrations)
- Exercise Challenge
- Peak Flow Meter Monitoring
- Symptom Diary Usage
- Quality of Life questionnaire
- Vital signs

Patient Education

- Pathophysiology of asthma
- Identification of triggers and avoidance measures
- Identification of early and/or late warning signs
- Appropriate use of device(s)
- Empowering the patient self-manage

Environmental Assessment

Conduct 1-3 hour environmental assessments at child care, elementary school and home sites.

Social Determinants of Health

- Environmental
- Financial
- Social
- Community Resources

MISSION Children's Hospital

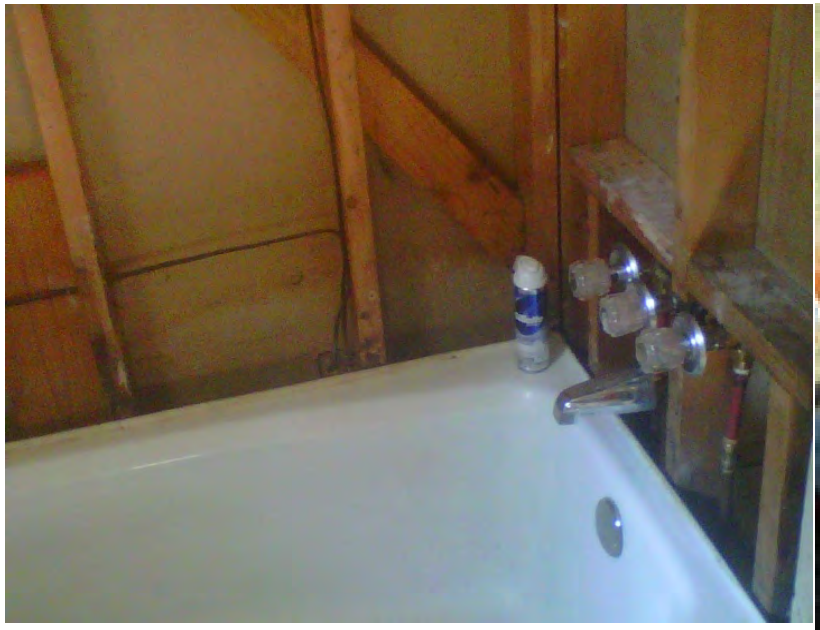

Cracker Barrel
Old Country Store


LOWES


EBLEN
Charities
WADDELL
CLIENT SERVICE
CENTER


Chick-fil-A
DRIVE-THRU
BREAKFAST
PEACH MILKSHAKES
ARE BACK
CLOSED SUNDAY

MISSION Children's Hospital



MISSION Children's Hospital

MISSION Children's Hospital

MISSION Children's Hospital

Health Promotion

- World Asthma Day
- Fit Together
- Environmental Assessments
- Health Fairs
- Asthma In-services

Evaluating the System

Collect health data

- Level of Severity
- Level of Control
- Environmental trigger exposure
- ED visits
- Hospitalizations
- Lung spirometry and exhaled nitric oxide
- Quality of Life Questionnaires
- Missed school days
- ACT score

National Asthma Control Initiative (NACI)

- **Funded by the National Heart, Lung, and Blood Institute (NHLBI) of the National Institute of Health.**

Demographics

Number	n=50
Average Age	8 years
Age Range	3-12 years
Male	56%
Female	44%
Caucasian	38%
American Indian	28%
Hispanic	6%
Mexican American	4%
African American	24%

NACI ASTHMA GRANT DIAGNOSTICS AND COST ANALYSIS

		12 Months Prior to Intervention	24 Months Post Intervention	24 Months Cost 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

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NACI SOCIAL DETERMINANTS OF HEALTH -- Asthmatic Children

Approximate Value	Social Determinants of Health
$3,800	Bedding encasement ($76 per person)
$1,940	Dodson Pest Control ($125 per visit) Waste Pro Large dumpster
$2,500	HVAC System (1 family)
$3,000	Flooring, windows, doors,…
$960	Plumber (12 hours at $80 per hour)
$4,920	Bathroom replacement (4 homes)
$1,350	Roof repair/replacement/sealant
$5,800	Furniture-beds, sofa, chairs, end tables, lamps, TVs
$180	Pillows, sheets
$12,384	Food referrals--Hearts with Hands, Manna, Upward Ministries, $1.72 x 20 pound box = $34.40 (Feeding America National Average) (30 families-12 boxes per family)
$8,400	Heating Assistance, $600 per family
$5,100	Emergency Assistance, $300 per family
$1,200	Christmas - toys, clothes, and presents (4 families)
$180	Car Seats ($60 each)
$2,000	Clothing Referrals ($100 each)
$240	Dehumidifier (2)
	Donations:
$200	Target
$575	Wal Mart
$200	Sam's Club
$1,024	Cracker Barrel - 16 family pack dinners at $64 each
$900	Chic-Fil-A - 300 gift cards for Kid's meal
$600	Belks - clothing for two 4-person families
$400	Dillards - shoes for two 4-person families
$7,792	Volunteer hours--assistance with home remediation, cleaning, etc.; 20 volunteers X 20 hours each = 400 hours X $19.48 per hour
$300	Back to school assistance

Approximate Value	Social Determinants of Health
$3,800	Bedding encasement ($76 per person) x 50
$1,500	Dodson Pest Control (12 visits at $125 per visit)
$440	Waste Pro - large dumpster delivery and pickup
$1,640	Bathroom replacement 1.5 bathrooms (shower, 2 toilets, 2 sink/vanity, faucets) and 8 hours plumber at $80 per hour
$340	Bathroom floor replacement (plywood, vinyl) and 3 hours labor at $80
$960	Plumber for sewage problems, 12 hours at $80
$400	Futon--Sam's Club
$1,600	Furniture--sofa, chairs, 2 end tables, 2 lamps, 2 TVs)
$30	Pillows, sheets
$800	Kitchen--china hutch, table, microwave, stove, refrigerator
$1,100	Ashley Furniture--full bed and headboard; 2 twin beds with headboards
$270	Roof sealant for mold remediation and 3 hours labor
$447	Food referrals--Hearts with Hands, Manna, Upward Ministries, $1.72 x 20 pound box = $34.40 (Feeding America National Average) x 13 boxes
$600	Clothing referrals, $100 each for 6 children
$1,800	Heating Assistance, $600 per family x 3 families
$1,500	Emergency Assistance, $300 per family x5 families
$600	Christmas - toys, clothes, and presents for 2 families
	Donations:
$200	Target
$575	Wal Mart-3 bicycles at $125
$400	Wal-Mart four-$100 gift cards
$200	Sam's Club
$768	Cracker Barrel - 12 family pack dinners at $64 each
$900	Chik-Fil-A - 300 gift cards for Kid's meal
$600	Belks - clothing for two 4-person families
$400	Dillards - shoes for two 4-person families
$390	Volunteer hours--assistance with home remediation, cleaning, etc.; 20 volunteers x 10 hours each = 200 hours x $19.48 = $389.60
$300	Back to school assistance
$22,560	TOTAL

MISSION Children's Hospital

NACI Summary of Outcomes 2009-2011
Environmental Assessments/Asthma In-services

School Tested	# Students Enrolled	# Participants	% of Adults Committing to a Smoke Free Environment	% of Adults Pledging to Create an Asthma Friendly	Smoke Free Site	Environmental Assessment Complete
Buncombe County						
Mission Hospital Child Development Cente	130	8	88%	88%	Yes	Yes
Cherokee County						
Marble Elementary Child Development Ce	120	9	100%	100%	Yes	Yes
Cherokee Indian Reservation						
Big Cove Child Care Center					Yes	Yes
Dora Reed Child Care Center					Yes	Yes
Cumulative Total: Above Child Care Cent	290	58	93%	100%	Yes	
Kituwah Academy/Child Care Center	56	22	82%	82%	Yes	
Clay County						
Hayesville Elementary Child Care Center	64	8	88%	88%	Yes	Yes
Graham County						
Robbinsville Elementary Child Care Center					Yes	Yes
Robbinsville Middle Child Care Center					Yes	Yes
Robbinsville High Child Care Center					Yes	Yes
Cumulative Total: Above Child Care Cente	717	40	93%	95%	Yes	
Haywood County						
Hazelwood Elementary Child Care Center	505	33	94%	97%	Yes	Yes
Jackson County						
Smokey Mountain Elementary Child Care	400	18	94%	94%	Yes	Yes
Madison County						
Mars Hill Elementary Child Care Center	550	18	67%	83%	Yes	Yes
Mitchell, Avery, Watauga and Yancey County						
Mountain Heritage High Child Care Center	18				Yes	Yes
Intermountain Child Care Center (Mitchell	51				Yes	Yes
Cumulative Total: Above Child Care Cente	412	39	95%	95%	Yes	
Swain County						
Bright Adventuress Pre-K; Swain Co. Sch	102	6	100%	100%	Yes	Yes
Totals	3415	259	91%	93%	100%	100%

Specific Program Activities 2009 - 2011

Event Name	Description	Target Audience	Number of People impacted	Location
World Asthma Day	Asthma education and in-service for elementary-age children	Elementary-age children, school teachers and principles throughout WNC	1,840	School systems in WNC
WNC School Nurse Asthma In-service	Workshop, presentation and training in regards to asthma	School nurses of WNC	120	Western Region of North Carolina
NC Asthma Summit	Asthma Conference	Health Care Providers	530	Research Triangle Park
Physician In-service	Presentation of EPR - 3 Guidelines and GIP (Guidelines Implementation Panel); NACI Demonstration Project	PCP's from Cherokee Indian Reservation (Tallulah Valley Health Center and Snowbird Clinic); Macon County (Angel Medical Center); Haywood County; Mission Children's Specialist	~ 250	Cherokee Indian Hospital; Mission Children's Rueter Outpatient Center
Mission Children's Specialist "Lunch and Learn"	Presentation in regards to asthma	Nurses at Mission Children's.	15	Mission Children's Specialist
Health Professional Asthma In-service	Workshop, presentation and training in regards to asthma	Social Workers	12	Mission Hospital

National Environmental Leadership Award in Asthma Management

❖2012 Health Care Provider Recipient

This award is EPA's highest recognition a program and its leaders can receive for delivering excellent environmental asthma management as part of their comprehensive asthma care services. Each year, EPA honors exceptional health plans, health care providers and communities in action.

US EPA Asthma Grant Demographics
October 1, 2012 - September 30, 2014
N = 61

Age	
Average Age	8.4
Age Range	1 - 17
Gender	
Male	57%
Female	43%
Ethnicity	
American Indian	23%
Caucasian	54%
African American	10%
Hispanic	8%
Hispanic-American Indian	5%
Insurance	
Coventry	2%
Medicaid	97%
Unknown	1%

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

US EPA Asthma Grant 2012-2014
Asthma Severity and Control

Level of Severity (at Baseline)

Intermittent	2%
Mild Persistent	16 %
Moderate Persistent	69%
Severe Persistent	13%

Level of Control (at Baseline)

Controlled	5%
Not well controlled	34%
Very poorly controlled	61%

US EPA ASTHMA GRANT DIAGNOSTICS AND COST ANALYSIS

		12 Months Prior to Intervention	Intervention	Cost Avoidance
	ED Utilization			
	Total Visits	102	8	
IMPACT	Total Costs	$107.322.36	$8,417.44	$98,904.92
HOSPITALIZATION/				
ED	Hospitalizations			
	Total Hospitalizations	56	7	
	Total Charges	$ 738,472	$92,309	$646,163
	Total			$745,067.92
QUALITY OF LIFE	School Absences			
	Average missed days	13.1	3.7	9.6**
	ACT	15.7	22.7	7.1**
	MEASUREMENT	BASELINE***	POST	Avg. Improvement
CLINICAL	FVC	94.4	103.9	9.6**
OUTCOMES	FEV1	90.5	99.5	9.0**
	FEF25-75	80.8	92.5	7.6*
	eNO	17.5	20.5	3.2

Source: Decision Support 2014 Data: $1052.18/ ED Visit

Source: NC State Center for Health Statistics, 2012 Provisional Hospital Discharge Data: $13,187

*** 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

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US EPA Asthma Grant 2012-2014 Environmental - Home Assessments	
Average Number in Household	5
Home Assessments	
Smoke in Home	46%
Pets Inside Home	61%
Pest Infestation Inside Home	51%
Carpet in Home	62%
Water Leak in Home	38%
Water Leak Outside Home	41%
Fungal Growth Inside Home	41%
Heat Source	
Vented	82%
Un-vented	16%
Unknown	2%
Air Conditioning	
None	18%
Window Unit	30%
Central	49%
Unknown	3%
Bed Encasement Present (prior to intervention)	100%

US EPA – Social Determinants of Health

Approximate Value	Social Determinants of Health
$4,636	Bedding encasement ($76 per person)
$1,500	Dodson Pest Control ($125 per visit)
$2,500	HVAC System (1 family)
$3,000	Flooring, windows, doors,…
$960	Plumber (12 hours at $80 per hour)
$4,920	Bathroom replacement (4 homes)
$1,350	Roof repair/replacement/sealant
$5,800	Furniture-beds, sofa, chairs, end tables, lamps, TVs
$180	Pillows, sheets
$12,384	Food referrals--Hearts with Hands, Manna, Upward Ministries, $1.72 x 20 pound box = $34.40 (Feeding America National Average) (30 families-12 boxes per family)
$8,400	Heating Assistance, $600 per family
$5,100	Emergency Assistance, $300 per family
$1,200	Christmas - toys, clothes, and presents (4 families)
$180	Car Seats ($60 each)
$2,000	Clothing Referrals ($100 each)
$240	Dehumidifier (2)
	Donations:
$200	Target
$575	Wal Mart
$200	Sam's Club
$1,024	Cracker Barrel - 16 family pack dinners at $64 each
$900	Chic-Fil-A - 300 gift cards for Kid's meal
$600	Belks - clothing for two 4-person families
$400	Dillards - shoes for two 4-person families
$7,792	Volunteer hours--assistance with home remediation, cleaning, etc.; 20 volunteers X 20 hours each = 400 hours X $19.48 per hour
$300	Back to school assistance
$66,341	**TOTAL**

US EPA Asthma Grant Summary of Outcomes 2012-2014
Environmental Assessments/Asthma In-Services

School Tested	# Students Enrolled	# Staff	Demonstrated Excellent or Improved Knowledge		Adults Committing to a Smoke Free Environment	Adults Pledging to Create an Asthma Friendly Environment	Smoke Free Site	Environ-mental Assessment Complete
			# of Parti-cipants	%				
Buncombe County								
Emma Elementary School	412	85	27	88.40%	30	28	Yes	Yes
Cherokee County								
Marble Elementary School	138	20	12	100.00%	16	16	Yes	Yes
Cherokee Indian Reservation								
Kituwah Academy/Child Care	106	35	17	92.80%	0	21	Yes	Yes
Clay County								
Hayesville Middle School	400	30	13	100.00%	23	22	Yes	Yes
Graham County								
Robbinsville Middle School	218	20	19	94.50%	15	20	Yes	Yes
Haywood County								
Junaluska Elementary School	345	72	27	100.00%	12	12	Yes	Yes
Henderson County								
Mills River Elementary School	550	35	36	65.70%	15	15	Yes	Yes
Jackson County								
Cullowhee Valley Elem.	750	100	21	100.00%	13	13	Yes	Yes
Macon County								
Nantahala School	109	28	18	85.60%	17	17	Yes	Yes
Swain County								
East Elementary School	425	55						Yes
West Elementary School	418	55						Yes
Total for above schools	843	110	23	100.00%	38	38	Yes	
Yancey County								
East Yancey Middle School	309	40	4	100.00%	2	2	Yes	Yes
Totals	**4180**	**575**	**217**	**100.00%**	**166**	**168**		

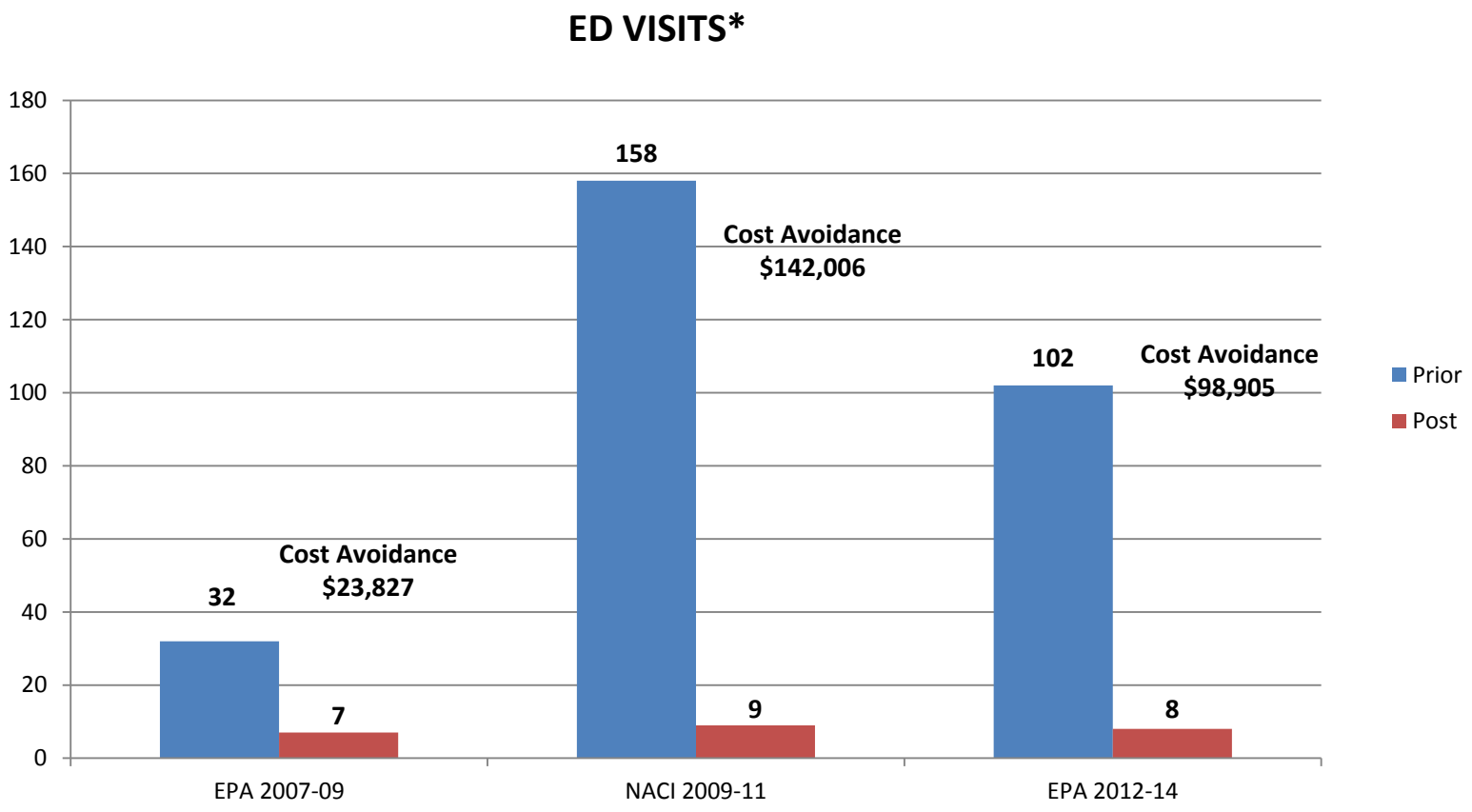
US EPA Asthma Grant Activities - October 1, 2012 - September 30, 2014

Event Name	Description	Target Audience	Number of People Impacted	Location
World Asthma Day	Asthma education and in-service for elementary age children	Elementary-age children, school teachers, and principals throughout WNC	1,762	School systems in WNC
WNC School Nurse Asthma In-Service	Workshop, presentation, and training in regards to asthma	School Nurses of WNC	110	Western Region of North Carolina
NC Asthma Summit	Asthma Conference	Health Care Providers	293	Research Triangle Park
Children's Environmental Health Western Regional Meeting	Asthma as a Disease State and Creating an Asthma-friendly Environment	Heath Care Providers and Environmental Specialists	40	Mission Health System
Health Professional Asthma In-Service	Workshop, presentation, and training in regards to asthma	Health Care Providers	1413	Western Region of North Carolina
Health Initiatives	Asthma Education and Health Initiatives	School-age children, principals, teachers, parents and other professionals	774	Western Region of North Carolina
Mountain Air Conference	Asthma as a Disease State and Creating an Asthma-friendly Environment	Health Care Providers	40	MAHEC
CHEST	Regional Asthma Disease Management Program presentation	Health Care Providers	100	Atlanta, Georgia
AARC Congress	Regional Asthma Disease Management Program Asthma Abstract Presentation	Health Care Providers	5491	New Orleans, Louisiana
Pediatric/Neonatal Conference - Child and Family Together	Asthma as a Disease State and Creating an Asthma-friendly Environment	Health Care Providers	120	MAHEC
NC Society of Respiratory Care Symposium 2013	Asthma as a Disease State and Creating an Asthma-friendly Environment	Health Care Providers	100	Wilmington, NC
Mission Children's Radiothon	Environmental and asthma educational materials	Children, parents, and community partners	2000	Reuter YMCA
		Total	12,243	

Regional Asthma Disease Management Program

Population-Based Healthcare

Grant Outcomes Summary



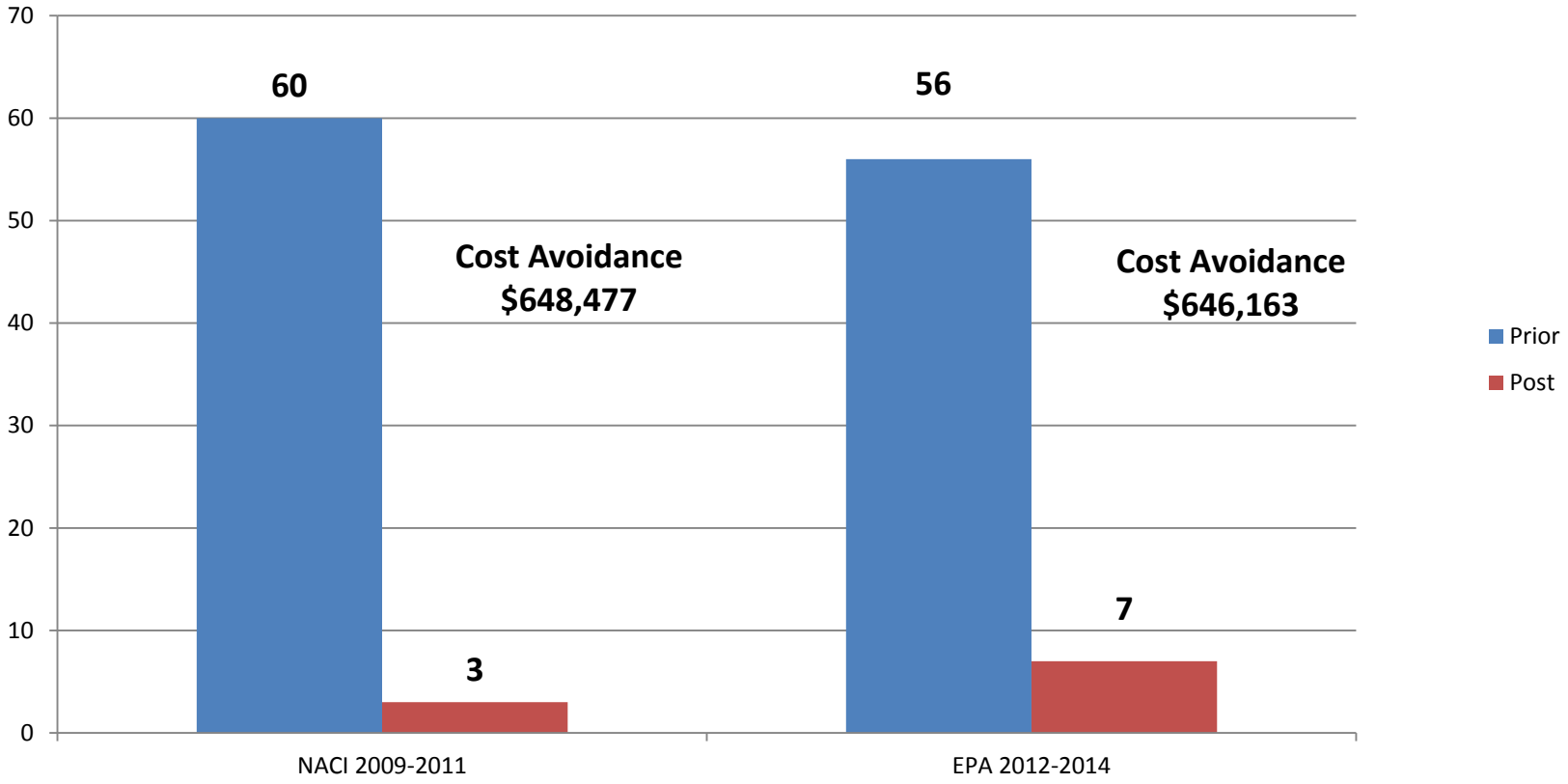
*Results compiled by Mission Health System Research Institute

Regional Asthma Disease Management Program

Population-Based Healthcare

Grant Outcomes Summary

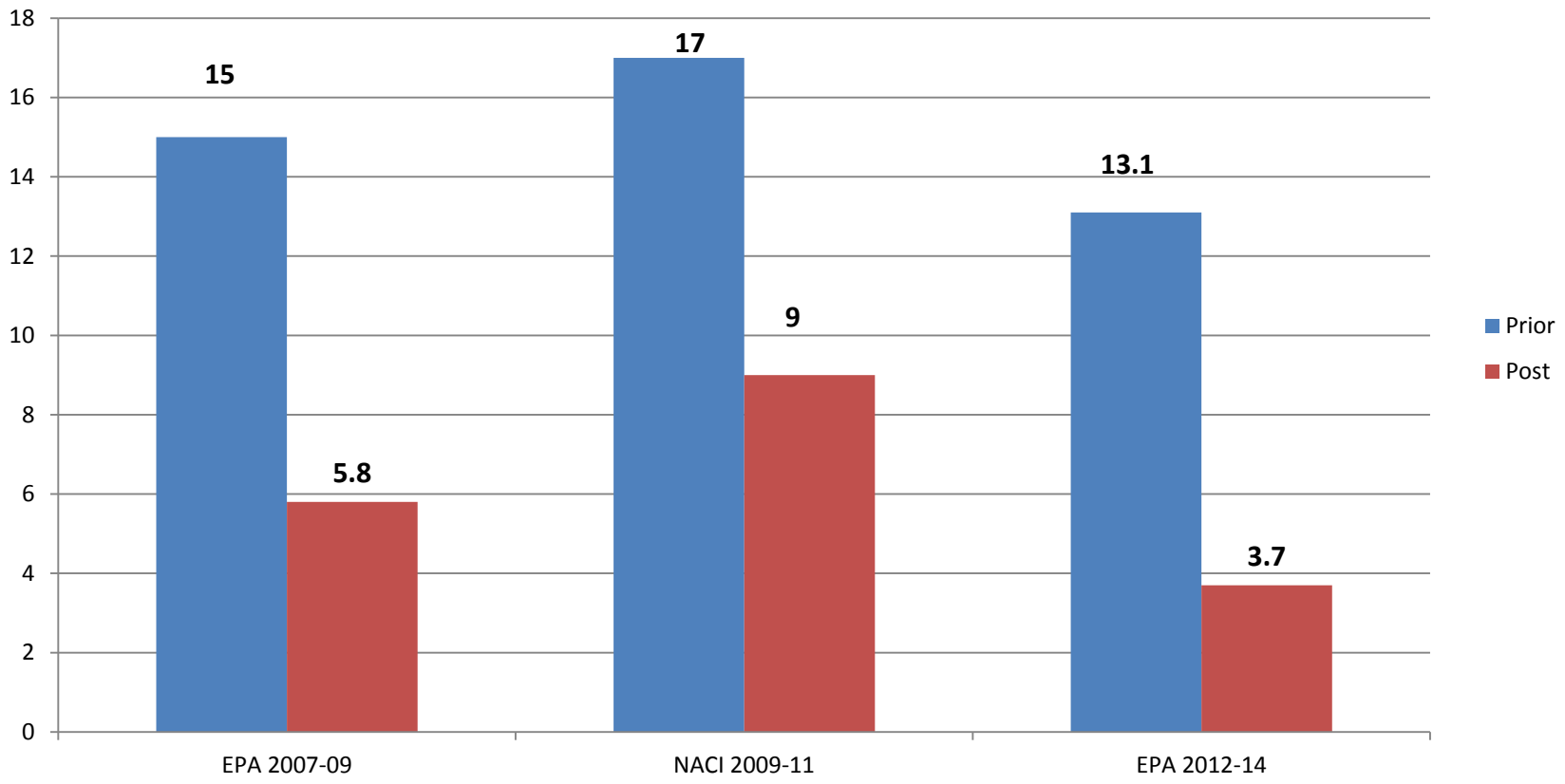
HOSPITALIZATIONS*



*Results compiled by Mission Health System Research Institute

Regional Asthma Disease Management Program
Population-Based Healthcare
Grant Outcomes Summary

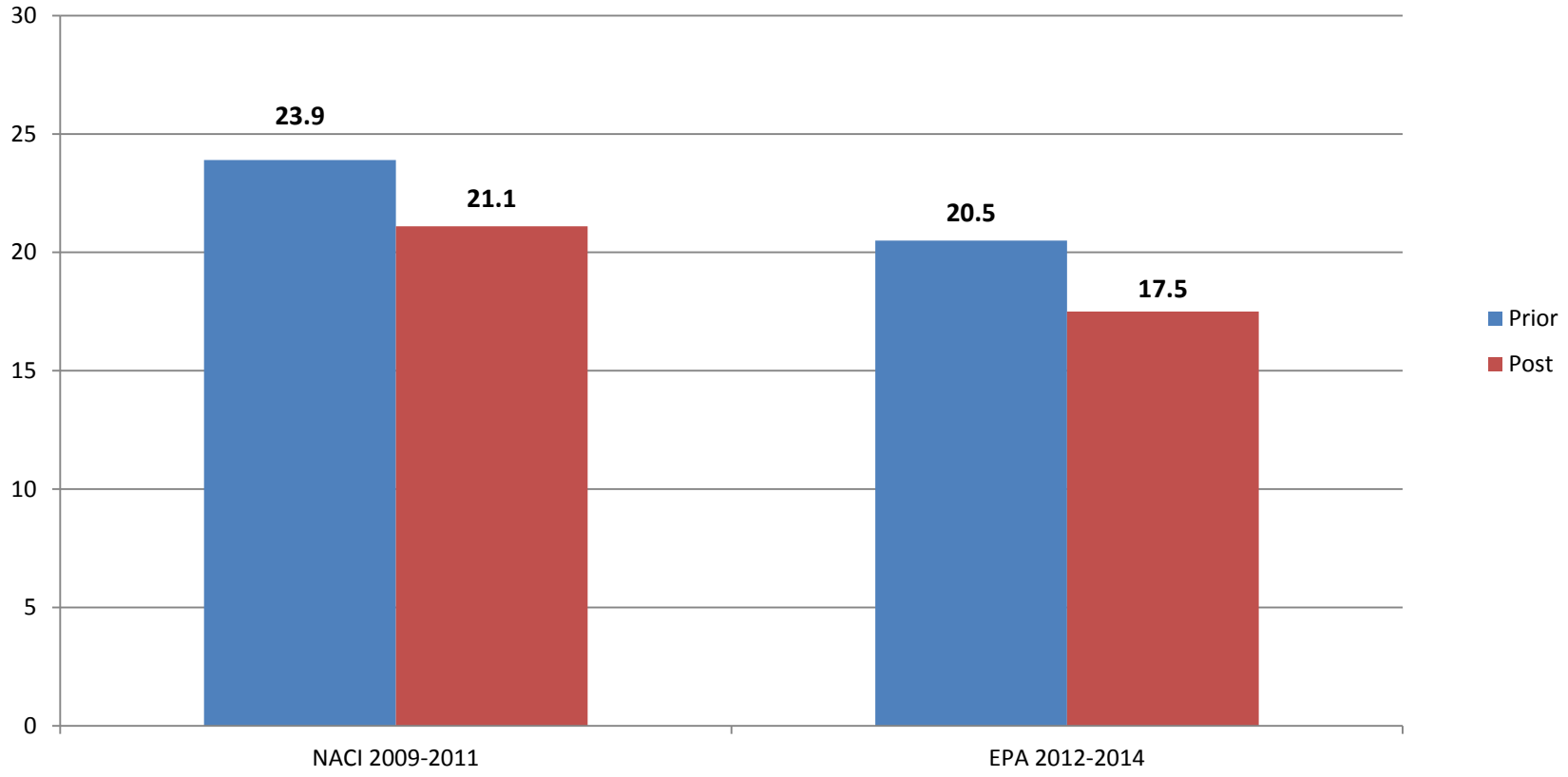
SCHOOL ABSENCES*



*Results compiled by Mission Health System Research Institute

Regional Asthma Disease Management Program
Population-Based Healthcare
Grant Outcomes Summary

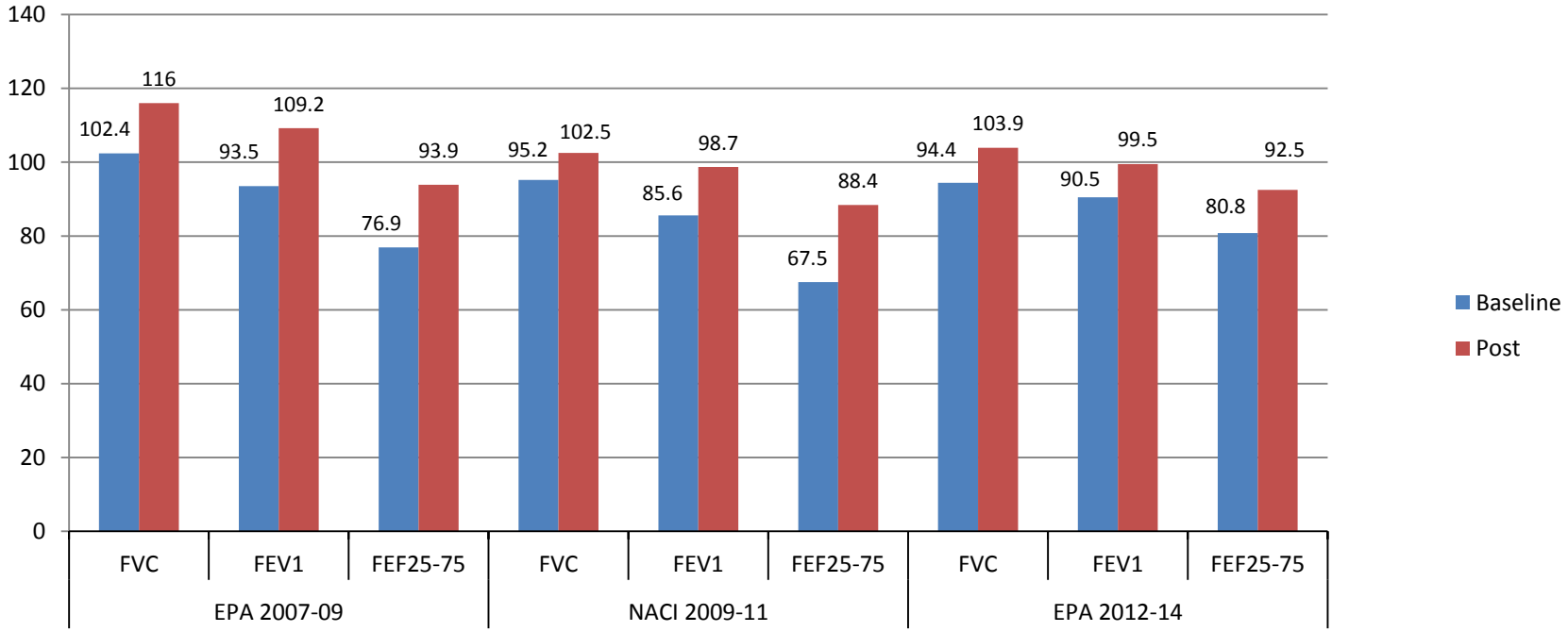
EXHALED NITRIC OXIDE (FeNO)*



*Results compiled by Mission Health System Research Institute

Regional Asthma Disease Management Program
Population-Based Healthcare
Grant Outcomes Summary

PULMONARY FUNCTION TESTS*



*Results compiled by Mission Health System Research Institute

Regional Asthma Disease Management Program
Population-Based Healthcare
Grant Outcomes Summary

Social Determinants of Health

Collaborations with various community organizations are utilized to address other socioeconomic barriers and implement solutions:

- Regional churches
- Youth Groups
- Eblen Foundation
- Food Services
- Pest Management entities
- Social Services
- Non-profit organizations

$88,901 + medications

The Regional Asthma Disease Management Program embraces the holistic approach to patient care through compassion and patient advocacy.

Indoor Environmental Trigger Management as Part of a Comprehensive Approach to Asthma Control

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

Elizabeth Cuervo Tilson, MD, MPH
Medical Director, Community Care of Wake and Johnston Counties

Prevalence of asthma

Community Care of North Carolina
Community Care of Wake/Johnston Counties

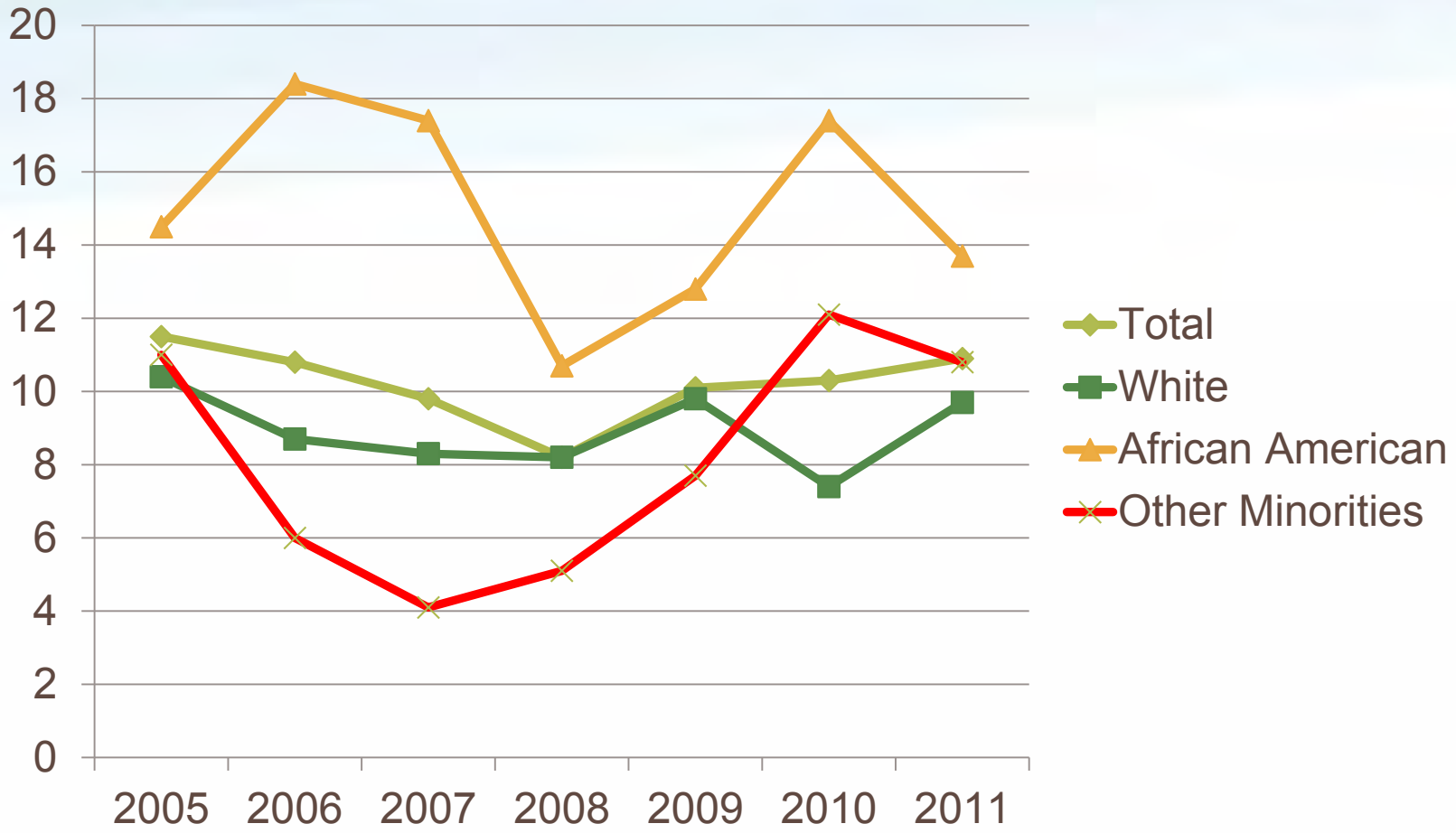
- **Behind dental disease, asthma is the most common chronic disease of childhood**
- **Prevalence of current asthma about 10%**
- **There is a disparity between populations**

North Carolina Child Health and Assessment Monitoring Program (CHAMP). North Carolina Center for Health Statistics

Summary Health Statistics for U.S. Children: National Health Interview Survey, 2010

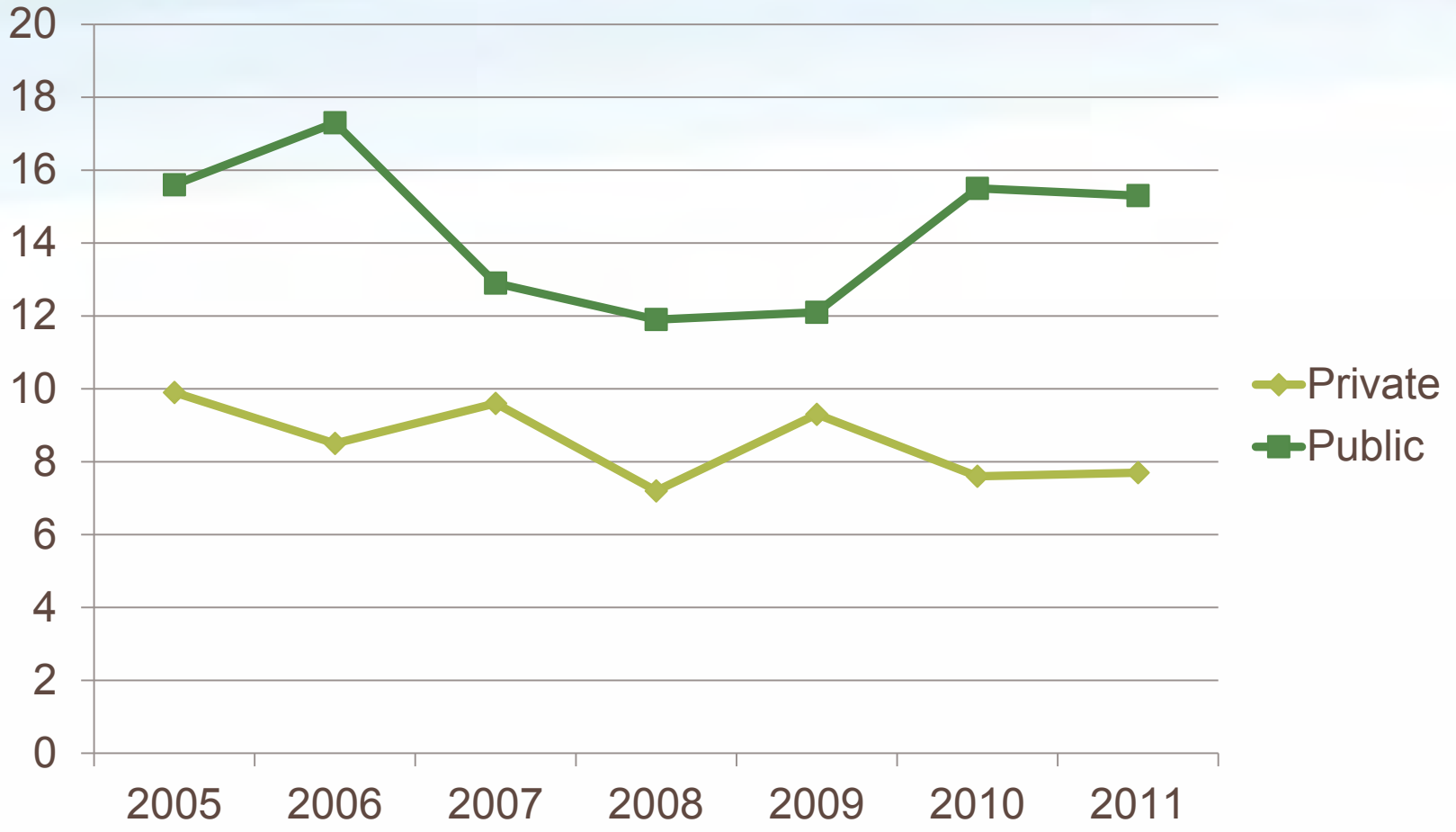
% of NC Children Who "Currently Have" Asthma by Race/Ethnicity

Community Care of North Carolina
Community Care of Wake/Johnston Counties



% of NC Children Who "Currently Have" Asthma by Insurance Status

Community Care of North Carolina
Community Care of Wake/Johnston Counties

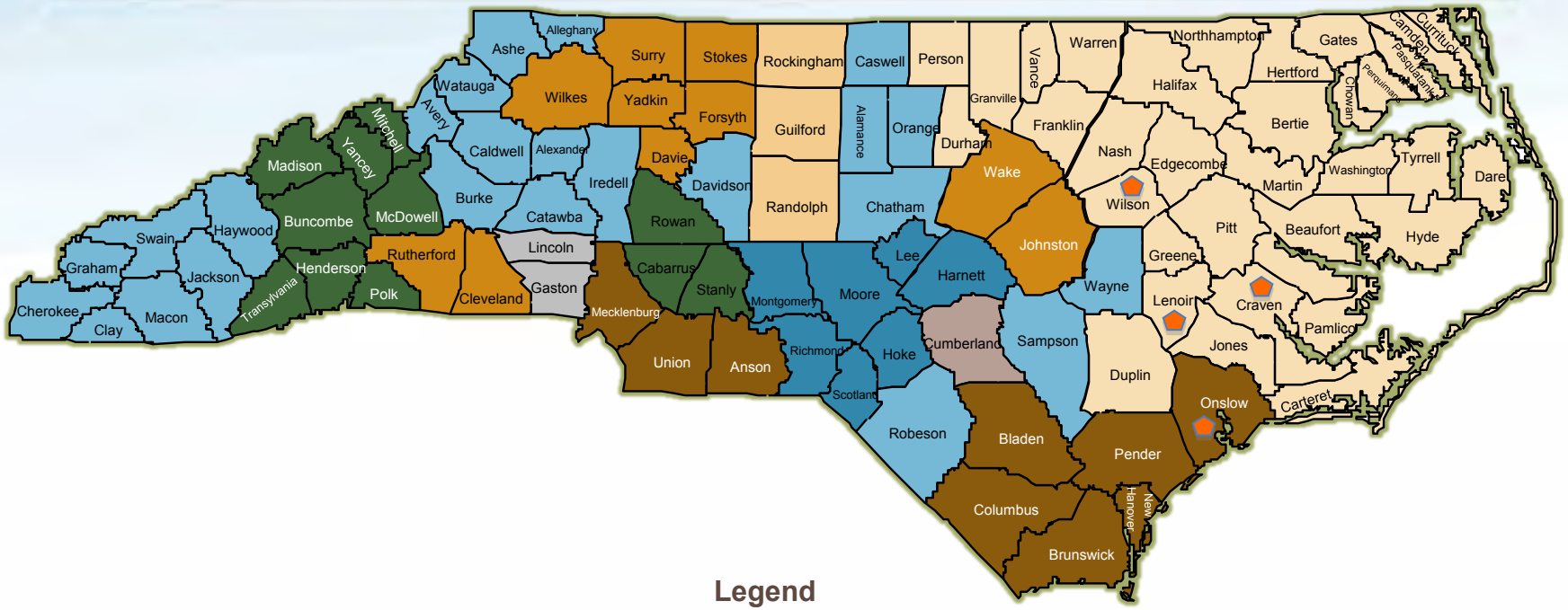


Community Care of NC

- Statewide primary care medical home & care management system for Medicaid and other populations
  - Defined as Primary Care Care Management (PCCM) program for Medicaid
- Improve access to, quality of and coordination of care and decrease cost of care
- 14 local Networks, 1 central office, all 100 NC counties, more than 4500 Primary Care Physicians (1360 medical homes), 1.4 million enrollees
- Resources to providers to help better manage their populations, including data, QI support and multi-disciplinary care management
- Connect different segments of the local health care community to create local systems of care

Community Care of North Carolina

Community Care of North Carolina



Legend

- AccessCare Network Sites
- AccessCare Network Counties
- Community Care of Western North Carolina
- Community Care of the Lower Cape Fear
- Carolina Collaborative Community Care
- Community Care of Wake and Johnston Counties
- Community Care Partners of Greater Mecklenburg
- Carolina Community Health Partnership
- Community Care Plan of Eastern Carolina
- Community Health Partners
- Northern Piedmont Community Care
- Northwest Community Care
- Partnership for Health Management
- Community Care of the Sandhills
- Community Care of Southern Piedmont

Source: CCNC 2011

What is Community Care of Wake and Johnston Counties?

- CCWJC is one of the 14 local Community Care of North Carolina (CCNC) networks serving Carolina Access Medicaid patients and their primary care providers
- 125, 000 recipients
- 162 Primary Care Medical Homes

Comprehensive Asthma Program

- Support for primary care providers
- Education and tools for best practice management
- Data to help inform patient care
- Care management of high risk patients
- Environmental Assessments as part

Why add the Environmental Assessment Piece?

Community Care of North Carolina
Community Care of Wake/Johnston Counties

- **2007 National Heart, Blood, Lung Institute**
  http://www.nhlbi.nih.gov/guidelines/asthma/index.htm
  - Reducing exposure to inhalant indoor allergens can improve asthma control
  - A multi-faceted approach is required
- **2008 Community Preventive Services Task Force**
  http://www.thecommunityguide.org/asthma/index.html
  - Recommends the use of home-based, multi-trigger, multi-component interventions with an environmental focus for children with asthma
  - Cites strong evidence of effectiveness in reducing symptom days, improving quality of life or symptom scores, and in reducing the number of school days missed.
- **2011 American Journal of Preventive Medicine** Am J Prev Med 2011;41(2S1)
  - Poor housing quality strongly associated with poor asthma control even after controlling for confounders such as income, overcrowding, smoking, unemployment

May be particularly important in addressing health disparities

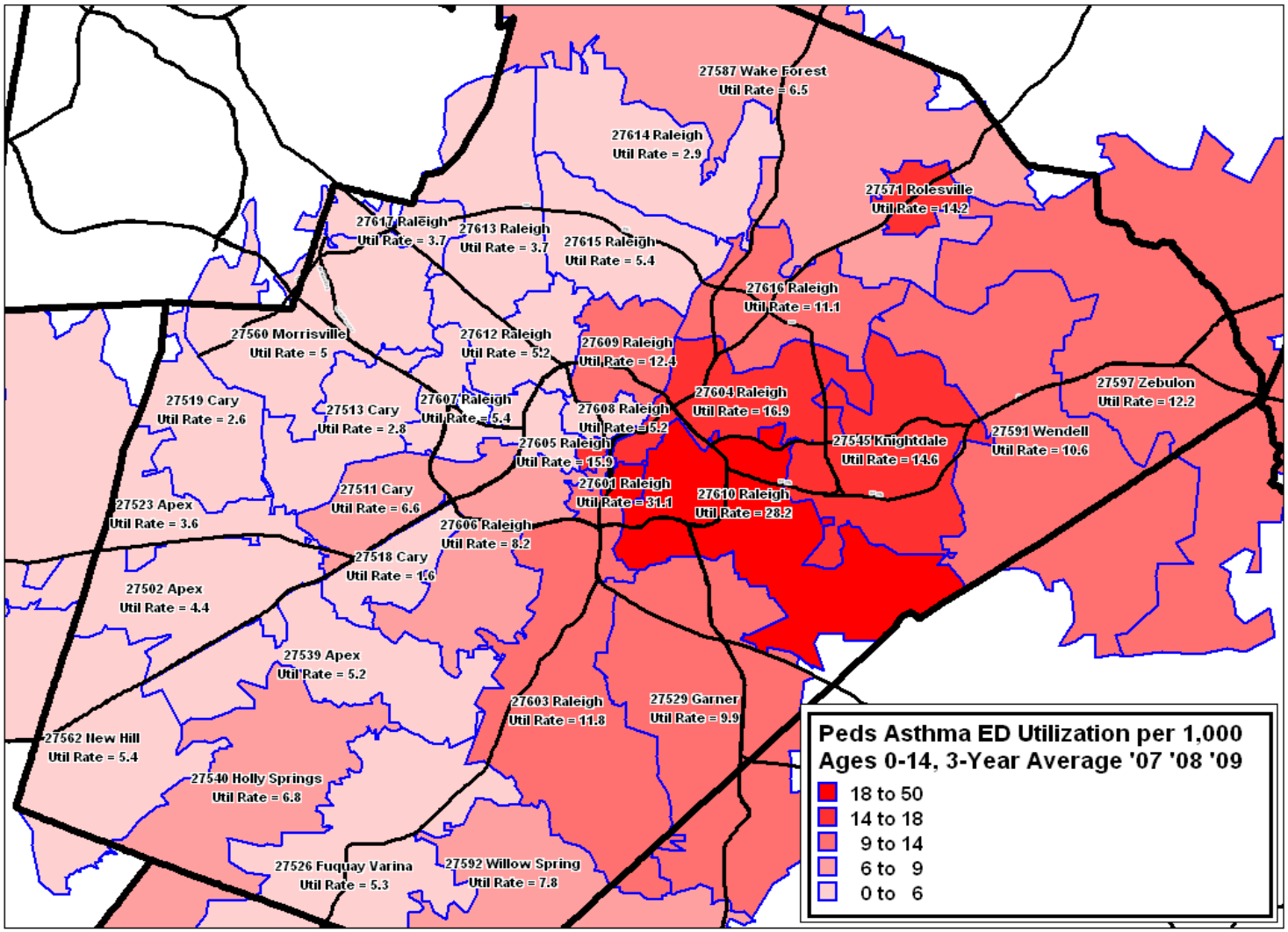
Community Care of North Carolina

- Perhaps some of the disparity in prevalence is due to differential exposure to environmental triggers from low-income housing

- Further exacerbated by vulnerability of families in rental housing to make changes

Asthma related ED visits/1,000 Ages 0-14 yrs by Wake County Zip Codes

Community Care of North Carolina
Community Care of Wake/Johnston Counties



Environmental Asthma Trigger Home Assessment Program

- **Multi-disciplinary, multi-component home visits and follow ups (Registered Nurse, Registered Sanitarian, PharmD)**
- **Partnership of CCJWC, Wake County Human Services and Wake County Environment Services**
  - WCHS and WCES - 0.5 FTE Environmental Health Specialist (EHS) for Wake County patients
  - CCWJC – RNs, Pharm Ds, Data, Patients, PCPs
- **Tailored education provided to family**
- **Durable goods to modify triggers (e.g. mattress and pillow encasings)**
- **Housing/legal resources shared as needed**
- **Detailed Report Provided To PCP**
- **Database - 1 year pre and 1 year post assessment**

Qualifications for In-home Environmental Assessments

Community Care of North Carolina

- **All asthma patients in Wake County are eligible for multi-disciplinary in-home assessments with EHS**
- **In Johnston County, no EHS support but RNs and PharmDs**
- **Priority placed on patients that have:**
  - **Poor Asthma literacy and control**
  - **Emergency Department visits, hospitalizations**
  - **Poor medication compliance**
  - **Identified environmental concern (pests, mold, fumes, etc)**

Identifying Clients Who Would Benefit

Community Care of North Carolina

- **Referrals**
  - **Hospital Admissions, Emergency Visits, Direct PCP Referrals and Priority Patients identified by data**

- **Interventions for all Asthma patients**
  - **Medicaid claims review to assess PCP/Specialty links, ED and Hospital use and Medication lists/fill information**
  - **Telephonic asthma assessment for determination of educational and environmental needs**

Details of In-Home Assessments

Community Care of North Carolina

- 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.)
- Pharm D does the Medication Reconciliation
- Contact information for agencies that can advocate for families is given if needed

Environmental Asthma Triggers Evaluated During Assessments

- Dust mites
- Chemical Irritants
- Pest
- Second Hand Smoke
- Mold/Excessive Moisture
- Combustion By Products
- Warm Blooded Pets
- Other (Factors specific to that assessment)

Categorized into Client-based and/or Landlord-based factor

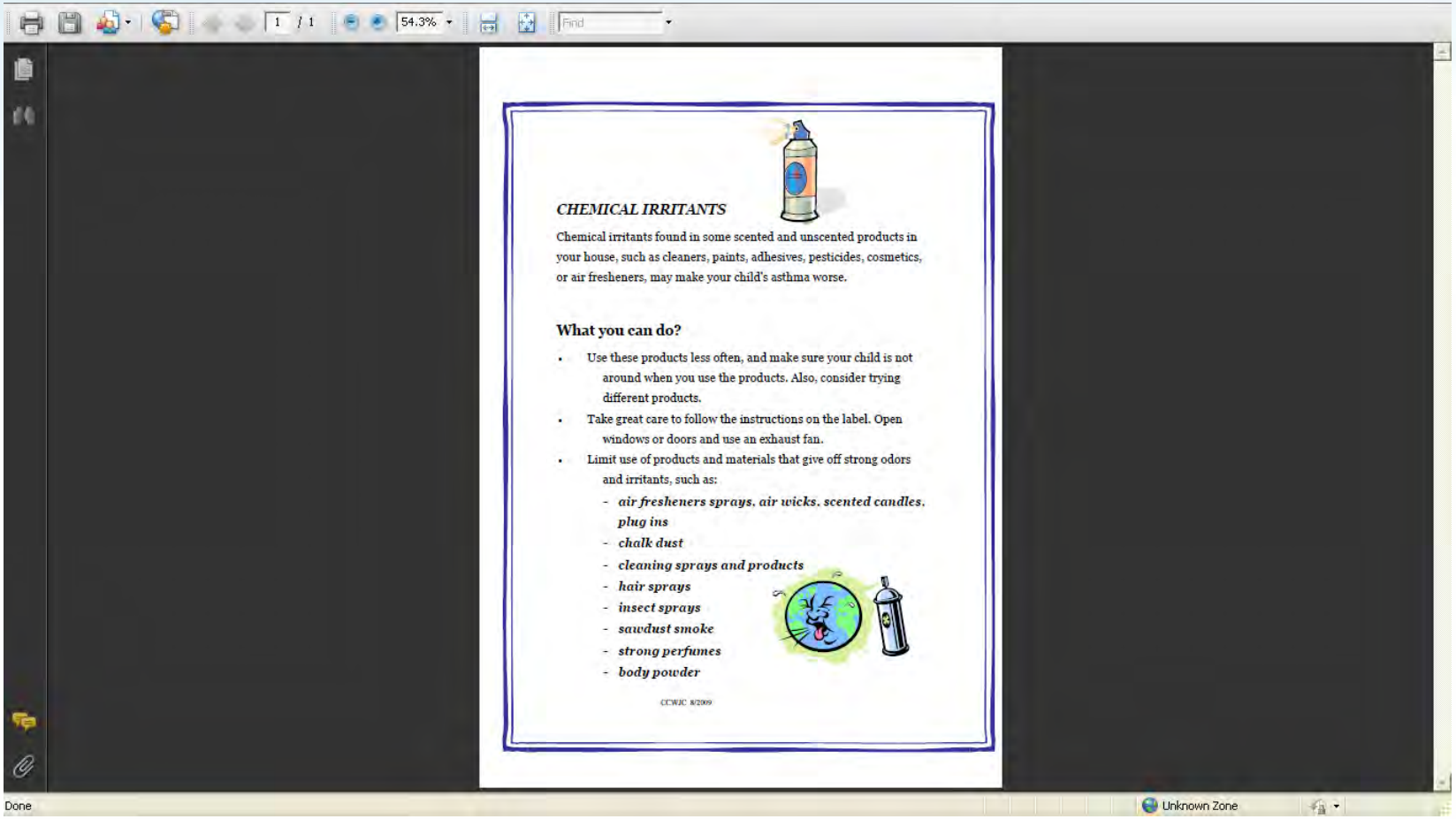
Equipment/Methods of Assessment

Community Care of North Carolina

- Visual evaluation of home to identify triggers (Interior and exterior)
- Use of hydrometer to determine relative humidity throughout home (Important for mold/moisture and dust mites)
- Use of flashlight to determine cleaning, ventilation, and pest problems.
- Low cost

Patient Education

Community Care of North Carolina
Community Care of Wake/Johnston Counties



CHEMICAL IRRITANTS

Chemical irritants found in some scented and unscented products in your house, such as cleaners, paints, adhesives, pesticides, cosmetics, or air fresheners, may make your child's asthma worse.

What you can do?

- Use these products less often, and make sure your child is not around when you use the products. Also, consider trying different products.
- Take great care to follow the instructions on the label. Open windows or doors and use an exhaust fan.
- Limit use of products and materials that give off strong odors and irritants, such as:
  - ***air fresheners sprays, air wicks, scented candles, plug ins***
  - ***chalk dust***
  - ***cleaning sprays and products***
  - ***hair sprays***
  - ***insect sprays***
  - ***sawdust smoke***
  - ***strong perfumes***
  - ***body powder***

CCWJC 8/2009

Patient Education

Community Care of North Carolina
Community Care of Wake/Johnston Counties

Toxic-Free Pest Control from your Pantry

A fact sheet from Toxic Free NC

Toxic Free NC common sense pest control recipe

Roach Balls

1 cup borax
1/4 cup sugar
1/4 cup minced onion
1 Tbsp. Cornstarch
1 Tbsp. Water

Make a paste of the ingredients and roll into little balls.
To use: Place 2 or 3 balls in a sandwich bag anywhere you have a roach problem. The roaches will eat the balls and carry them home to their nests, where they will die.
Boric acid or borax is safe to handle, though inhaling it in large amounts can irritate the respiratory tract. Because it is not a nerve poison, roaches will not become resistant.

Toxic Free NC common sense pest control recipe

Ant Bait

3 cups water
1 cup sugar
4 tsp. Borax

To use: Mix together and place the mixture in 3 to 6 screw top jars. Loosely pack with cotton wool. Screw the lids on tightly and seal with tape. Poke holes in the lid and place near points of entry, or along ant trails, for best results.
Boric acid or borax is safe to handle, though inhaling large amounts can irritate the respiratory tract. Clearly label the jar as POISON and keep away from pets and curious children.

Toxic Free NC common sense pest control recipe

Mold & Mildew Killer

1/2 cup white vinegar
1/2 cup borax
2 cups warm water

Pour or spray onto moldy areas and let sit for a few minutes, then scrub off with a brush. If mildew is still visible, repeat application. Do not save the leftover mixture.

Toxic Free NC common sense pest control recipe

Herbal Insect Repellent

15 drops lavender oil
15 drops tea tree oil
10 drops citronella oil
10 drops eucalyptus oiul
10 drops cedarwood oil

In a small bottle, mix these with about one ounce of your favorite unscented skin oil (olive oil works fine).
Not recommended for pregnant women. Keep out of your eyes. Try a small amount on your wrist first to check for skin allergies. Experiment with different ingredients to develop your own blend!

Find out more about toxic-free alternatives to pesticides at www.ToxicFreeNC.org

Post Assessment

Community Care of North Carolina
Community Care of Wake/Johnston Counties

- A detailed report is provided to parent and PCP with:
  - Findings and recommendations of Assessment
  - Education And Supplies Provided
  - Medication Reconciliation
- With family permission, a letter and copy of report is provided to landlords, if applicable
- A 6-week repeat home visit is made by RN Care Manager
  - Assesses compliance with recommendations
  - Gives recommended supplies (e.g. Hepa Vacuum, food containers, etc)

Wake County Environmental Services and Community Care of Wake & Johnston Counties

Environmental Asthma Trigger Assessment

Patient ID #

Location Address

City Raleigh State NC Zip

1. Dust mites: Contributing factors present Client Factors not present ☐
   Observations: Keep exterior doors and windows closed as much as possible to keep out pollen, dust, and humidity. Regulate the interior temperature in the home with the centralized air conditioning system. Recommend a HEPA filter vacuum cleaner for the client family to use.

2. Chemical Irritants: Contributing factors present Client Factors not present ☐
   Observations: Do not use plug in air fresheners or automatic aerosol air fresheners in the home. Chemical fumes and aerosol particles from these items could be asthma triggers.

3. Pest: Contributing factors present n/a Factors not present ☐
   Observations:

4. Second Hand Smoke: Contributing factors present Client Factors not present ☐
   Observations: Mother smokes. Family and friends of family who do smoke should not smoke in the child's presence. Example: Do not smoke inside the home or in vehicles used by the child. Recommend that the mother stop smoking to limit the child's exposure to this known asthma trigger.

5. Mold/ Excessive Moisture: Contributing factors present n/a Factors not present ☐
   Observations:

6. Combustion By Products: Contributing factors present n/a Factors not present ☐
   Observations:

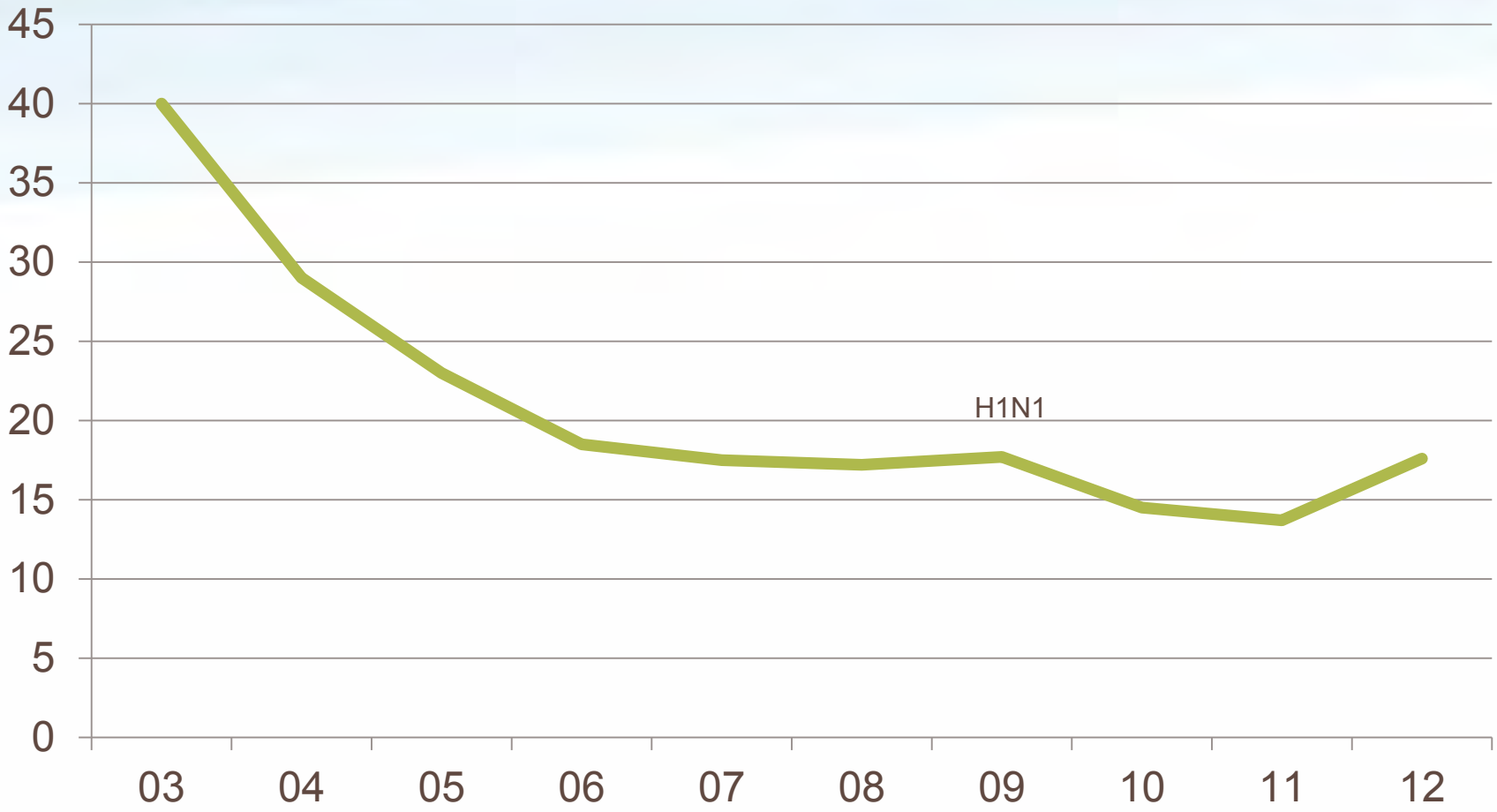
7. Warm Blooded Pets: Contributing factors present n/a Factors not present ☐
   Observations:

Comments: Monitor outdoor air quality daily. Limit the child's outside activities on days with poor air quality. Examples: Days with high levels of pollen, ozone, smog, air pollution, and humidity.

# of client dependant triggers: 3

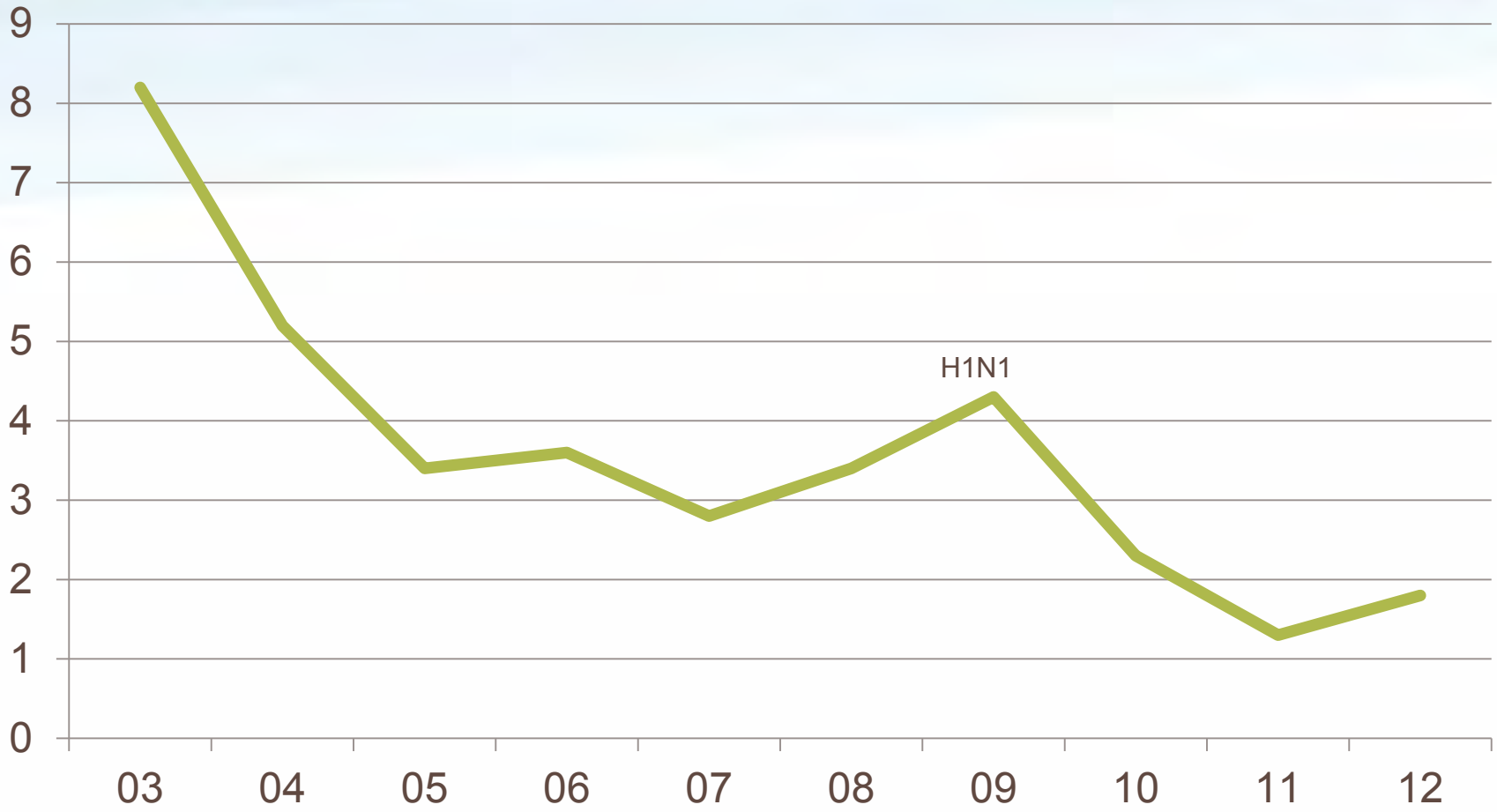
Asthma ED rates - CCWJC

Community Care of North Carolina
Community Care of Wake/Johnston Counties



Asthma Hospitalization rates - CCWJC

Community Care of North Carolina
Community Care of Wake/Johnston Counties



- 1 year pre vs 1 year post intervention
- Average Savings per patient - $707

Community Care of North Carolina
Community Care of Wake/Johnston Counties

NACo AWARD

The National Association of Counties awarded a 2013 Achievement Award in Health to Community Care of Wake and Johnston Counties, Wake County Human Services and Wake County Environmental Services for their collaborative work on the Environmental Asthma Trigger Home Assessment Program. (One page summary of the program included)

NACo ACHIEVEMENT AWARD WINNER
NATIONAL ASSOCIATION OF COUNTIES

How We Finance It Currently

- **CCNC/CCWJC per member per month (PMPM) revenue – PCCM Management**
  - Multi-disciplinary staff (MD, RNs, Pharm Ds, SWs)
  - Patient education tools
  - Work with and communication back to providers
  - Data feeds for referral and data analysis for evaluation
- **Wake County Human Services and Wake County Environment Services budget**
  - 0.5 FTE Environmental Health Specialist (EHS) for Wake County patients
- **Durable goods to modify triggers (e.g. mattress and pillow encasings) ~$2000 a year**
  - Not allowable to purchase through PMPM of current PCCM model in NC
  - Unrestricted funds/donations/contributions – particularly Wake County Asthma Coalition
- **Housing/legal resources**
  - Other dedicated agency funding (e.g. Legal Aid, Housing Authorities)
  - Unrestricted donated funds for rare emergency situations (e.g. breaking a lease)

Other Possible Financing Mechanism - Medicaid

Community Care of North Carolina
Community Care of Wake/Johnston Counties

Asthma Education component

- Medicaid Clinical Coverage Policy 10D, Independent Practitioners Respiratory Therapy Services, Subsection 5.2.2
  - Shared by Robin Morrison, M.A. CCC-SLP, Coordinator Outpatient Specialized Therapies, Clinical Policies and Programs, Division of Medical Assistance
- For Medicaid and NCHC beneficiaries diagnosed with asthma or other chronic respiratory disease, a maximum of 15 respiratory therapy visits during a six (6) consecutive month time frame can be requested for Prior Authorization. Additional visits can be requested by a new Prior Authorization request.
- Prior approval must be requested by the Medical Provider under the billing NPI.
- The Independent Practitioner (RT) primary service objective is to provide education that enables the beneficiary and/or parent/guardian to independently follow and comply with the beneficiary's written Action Plan (AP).

Limitation

- Does not address multi-disciplinary support
- Does not address environmental triggers

Other Possible Financing through Medicaid

- Current Medicaid model in NC is a Primary Care Care Management (PCCM) model
  - Limits what you can cover to more direct health care services and care management/education
  - Does not allow for coverage of modifying items (e.g. mattress covers and roach control) or other resources directed at Social Determinants of Health (e.g. housing)
- May be allowable, if defined as part of other Medicaid waivers
  - 1115 Innovation Waiver – NC is pursuing as part of Medicaid Reform for physical health
  - 1915 (b)/(c) Managed Care Waiver - In place for behavioral health (LME/MCO)

Community Care of North Carolina

Thank you!

Questions?

btilson@wakedocs.org

919-792-3621

Community Care of North Carolina

Community Care of Wake/Johnston Counties

North Carolina
State of the State

OPEN DISCUSSION

Neasha Graves, Moderator

Working Lunch

Healthcare Financing of Home-based Asthma Services

Amanda Reddy

Panel: Pilot Programs and Perspective on Sustainable Asthma Management Models

Amanda Reddy, Moderator

Health Resources in Action
Advancing Public Health and Medical Research

Promoting Sustainability for Community Health Worker-led Asthma Home Visiting

Lessons from the New England Asthma Innovations Collaborative

Presented at the **North Carolina Forum on Sustainable In-Home Asthma Management**

Stacey Chacker

September 13, 2016

NEIAC is an initiative of Health Resources in Action's Asthma Regional Council of New England

New England Asthma Innovation Collaborative
Controlling Asthma, Controlling Costs

NEAIC is a project of the Asthma Regional Council of New England, a program of Health Resources in Action

- Established in July 2012 with a $4.2 million Award from Centers for Medicare and Medicaid Innovation.

The project (NEAIC) described was supported by **Grant Number 1C1CMS331039 from the Department of Health and Human Services, Center for Medicare & Medicaid Services**. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies.

New England Asthma Innovation Collaborative

Goals and Partners

For children with poorly controlled asthma:

- Improve quality of care
- Improve health and quality of life outcomes
- Decrease health care utilization costs
- Advance sustainable payment systems

In four states:

- **Nine Health Care Providers**
- Policy and Training Partners
- **Seven Medicaid Payers**
  - MMCOs
  - State Medicaid Offices

NEAIC Intervention: CHW- Led Asthma Home Visits

1145 participants from January 2013 – June 2015,

- **Assess** patients' needs and home environment
- **Provide** asthma self-management education
- **Deliver** cost-effective environmental supplies
- **Improve** quality and experience of care:
  - o Client-centered, use of motivational interviewing
  - o Promote asthma action plans
  - o Promote connections to primary care & prevention
  - o Referrals for social services

Target Population

- o Aged 2 – 17 years old
- o Medicaid or CHIP beneficiary
- o A diagnosis of asthma from an authorized clinician
- o Poorly controlled asthma

Community Heath Workers

- **Frontline public health worker**
- **Understanding of the experience, language, and/or culture**
- **Liaison between healthcare and community**
- **Culturally competent service delivery**
- **Advocate for individual and community needs.**
- **Peer education**
- **Social support and advocacy**
- **Access to services**

Evaluation

- Intervention: home visit / follow-up phone call data
  - Caregiver self-report (44Qs)
    - 1st, last home visit, 6, 12 mos.
  - Environmental observations (36 items)
    - 1st & last home visit

- Parent/Guardian focus groups

- Claims and encounter data:
  - All claims
  - 12 months pre/post
  - Comparison population from claims

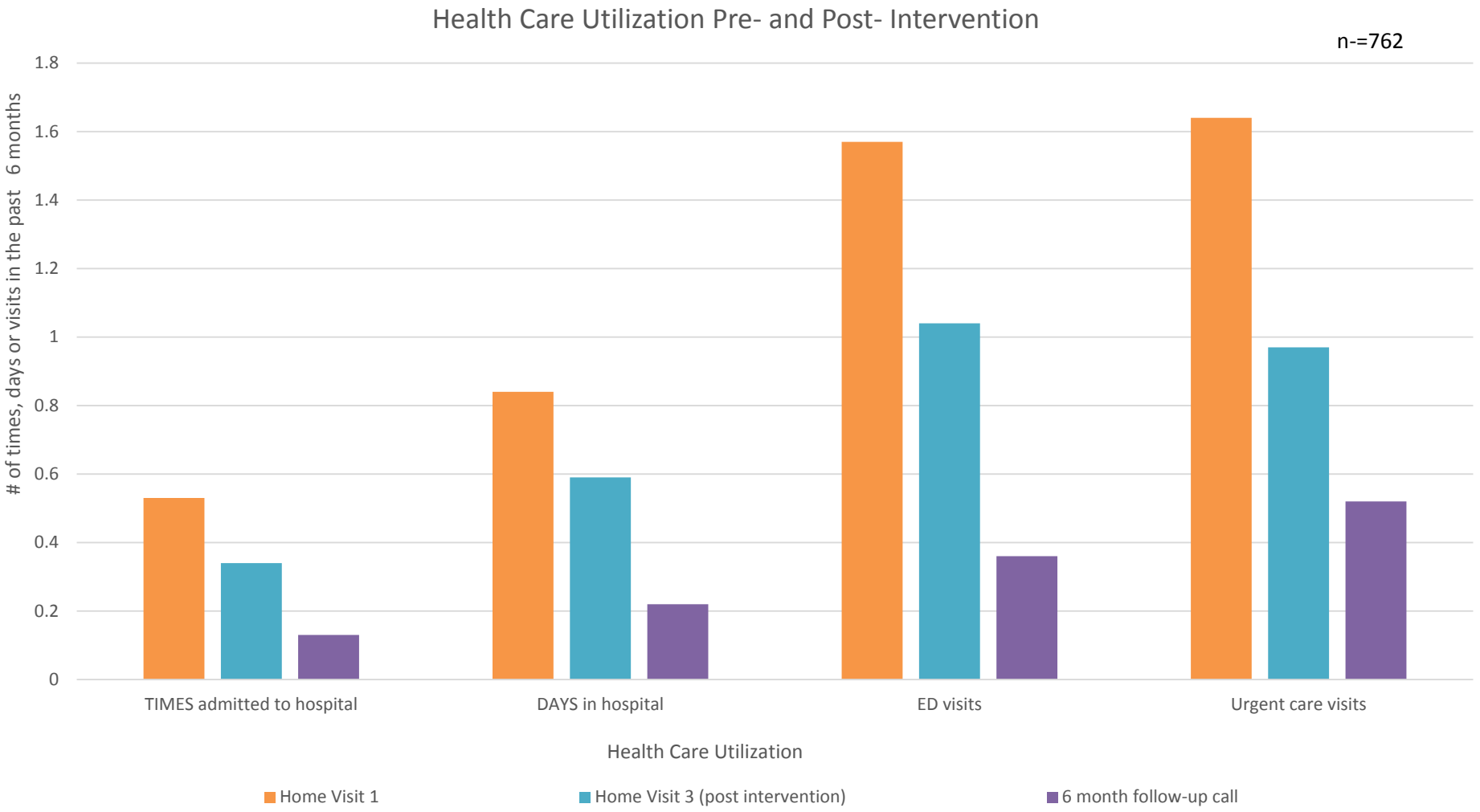
The Intervention Works!

Data from home intervention shows

- Improvements to the home environment
- Improved Quality of Life
- Improved Asthma Control
- Decreased number of ER visits, number and length of hospital stays = cost savings!

Parent, *"my son hasn't been to the hospital in eight months!" and "I don't know why health insurance doesn't pay for this!"*

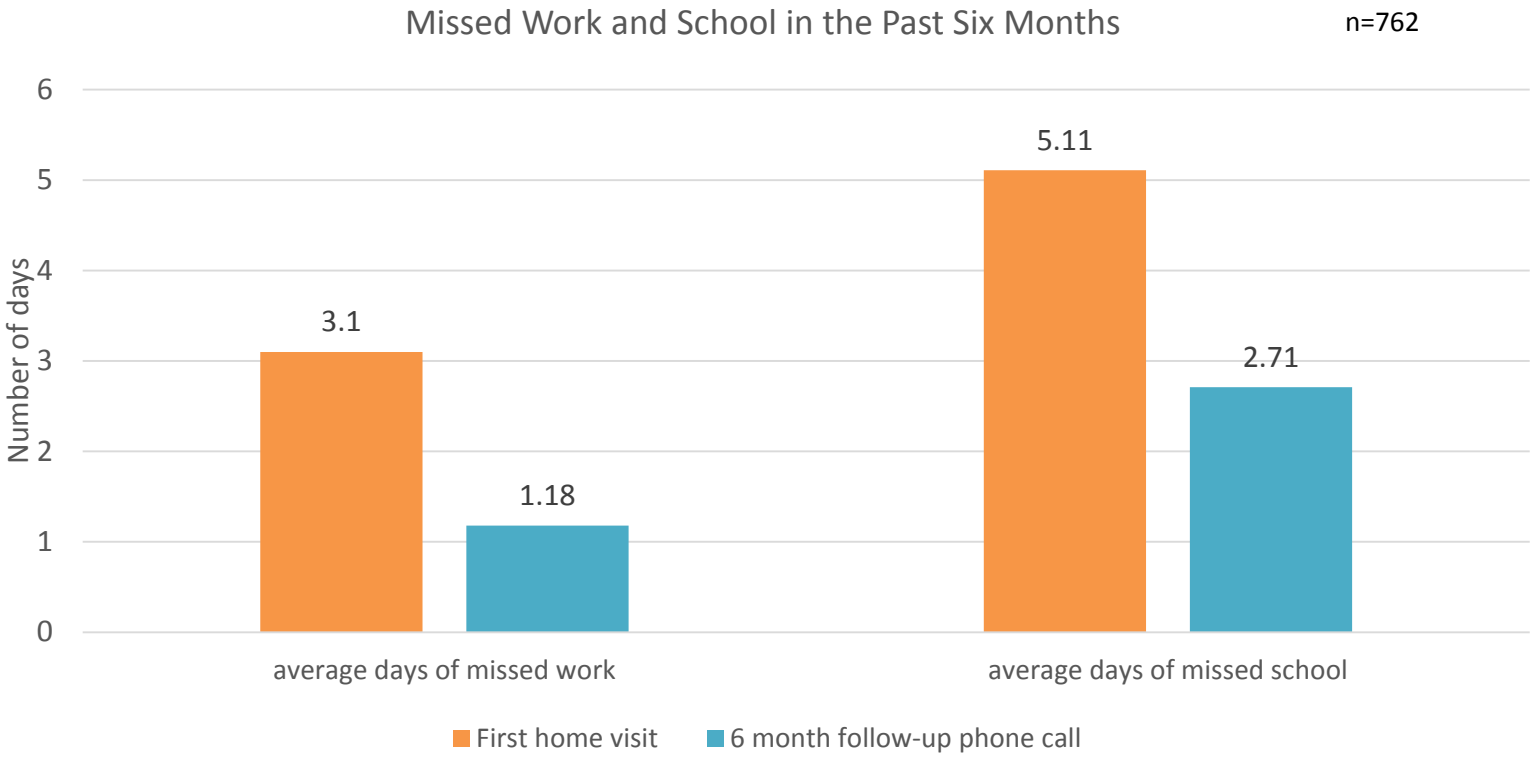
Health Care Utilization – Caregiver Report



Note: For each health care utilization measure, differences between time intervals are statistically significant (p <.05*).

Missed Work & School Days Due to Asthma Caregiver Report

"He missed 20-30 days of school a year before the program. He hasn't missed any school since the program." – Focus Group Participant



Note: Differences between time intervals are statistically significant (p =.000*).

Asthma Control and Environmental Triggers

Asthma Control Categories	Cumulative	
	Visit 1	Visit 3
Well controlled	22.9%	51.0%
Not well controlled	45.3%	39.1%
Very Poorly controlled	31.7%	9.9%

Environmental Factor	Cumulative	
	Visit 1	Visit 3
Mold	46.6%	34.2%
Pests	36.1%	25.6%
Smoke	36.6%	25.8%
Pets	31.3%	32.7%
Chemicals	84.3%	48.2%
Dust	69.0%	38.4%

Note: Differences between time intervals are statistically significant (p =.000*).

Preliminary Economic Evaluation

Claims and Encounter Data shows 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

Note: These results have not been verified by CMMI's evaluator, and are based on six months pre-post for 51 patients

Final economic analysis for 12 months pre-post in progress. Anticipate data for 600 patients.

Other Program Benefits

- Better understanding of asthma and asthma meds
- Increase of use of Asthma Action Plans
- High caregiver satisfaction
- Families receive referrals for social services
- Benefits may extend to all household members from participation

Payers as Partners

- **Invite/recruit early in process** - start with Medical Directors
- **Outline problem and program goal**
- **Emphasize possible benefits – e.g.**
  - Members receive high-quality services, reducing utilization
  - Capacity built in payer's service area
  - May compliment payer's case management services
  - Payer gets data on health outcomes, quality of life and cost
  - Recognition
- **Specify the "ask" – e.g.**
  - Meetings
  - Claims data
  - Referrals
  - Discussing piloting new payment models and policy change

Securing Claims and Encounter Data

- **Health economist:** specify data needed & time period.
  - NEAIC request: All claims and encounter data for all pediatric patients ages 2 – 17 years old with diagnosis of asthma – for intervention population and to develop comparison group
- Assure **HIPAA compliant** environment
- Develop secure **data transfer protocols**
  - Be sure to include all which will need access to data (for NEAIC – CMS)
- **Patient Consent Forms** – specifying purpose for sharing data, and entities it will be shared with.

Securing Claims and Encounter Data

- Work with Payer Compliance Offices to determine and draft **necessary agreements** (usually Data Use Agreements (DUA)); budget for legal review.
- Develop **specifications.**
- **Comparison group** (beware of other existing interventions that may impact findings)
- Remind payers in advance for data draw.
- Review all data for completeness as soon as receive.
- Be prepared to **negotiate and problem solve**.
- Relationship building is important and ongoing!

NEAIC Payer Assessment

Purpose: To gain a better understanding of:

- **Factors important to payers when considering providing/paying** for home-based asthma interventions

- **Views about supporting CHWs** as part of clinical teams for asthma

Assessment Key Findings

- New England Payers are **receptive to asthma home visiting** programs **and CHW workforce.** Need assurances of standards in training and qualifications.

- Payers and providers both **need information re: CHW field** and how to implement the pediatric asthma intervention effectively.

- Priority for evidence needed to promote financing:
  - **Cost-benefit** and **improved health** outcomes.
  - **Need**, especially among a payers' membership
  - **Impact on QI** measures and patient satisfaction.

Factors Influencing Decision Making for Reimbursement of Asthma Home Visiting

Evidence of clinical effectiveness and an adequate cost-benefit ratio are central.

- ***Cost alone will not drive the decision*.**

- Improvements in health care quality, patient experience of care, and meeting HEDIS measures important.

- Compelling if clinical improvements and savings are shown for payer's members or service area and linked to evidence of need.

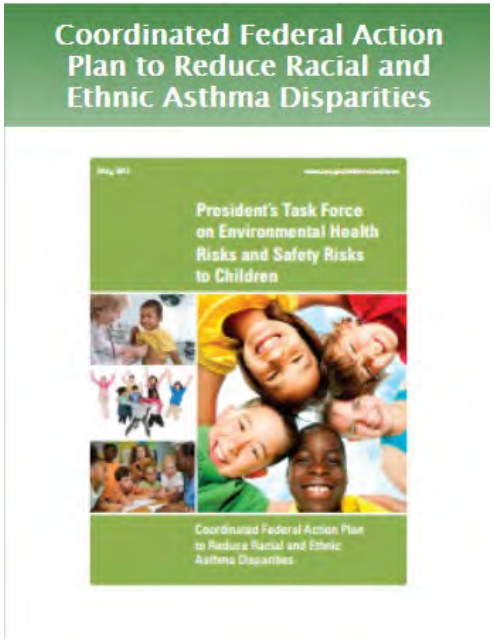
Other Learnings

- **Accountable Care Organizations** or "Provider-led Entities" (aka Providers) - becoming **key decision makers in coverage of services**
- Payers and/or ACOS may **"buy" or "build" services**
- **In-home interventions may benefit a family –** promote, and if possible measure.
- Emphasize - **Social Determinants of Health**
- Deploy **"right size" intervention** – based on risk

Pursuing Sustainable Financing and Spread

Current sustainability and spread:

- Community benefits
- Departments of Public Health
- Donor funding
- MMCO
- Boards of Health



Continuing efforts/opportunities:

- **<u>Accountable Care Organizations</u>**
- CDC 6|18 Initiative
- MMCO
- 1115 Waivers
- Delivery Systems Reform Incentive Payment Programs
- Pay for Performance (or Social Impact)

Questions and Thank You!

- Stacey Chacker, Co-PI Project Director schacker@hria.org
- Heather Nelson, PhD, MPH, Co-PI and Evaluator hnelson@hria.org

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North Carolina Forum on Sustainable In-Home Asthma Management

Frances Martini, BSN, MBA

September 13, 2016

Who We Are …….

Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee

Background

- Report on asthma prevalence, environmental risks factors and patient medical utilization
- **In the top 20 cities of challenging places to live with Fall allergies in 2015, Memphis ranked 4th, Knoxville 6th, Chattanooga 15th, Nashville 20th**

Source: Asthma and Allergy Foundation of America (AAFA's). Allergy Capitals 2015. *http://www.aafa.org/media/Fall-Allergy-Capitals-List-2015.pdf*

Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee

Why is a Managed Care Organization (MCO) Interested in Asthma?

- Asthma continues to be a serious public health problem.
- Asthma is identified in the top 10 primary disease conditions for high cost claims in the our BlueCare population.
- We are on a fixed income.

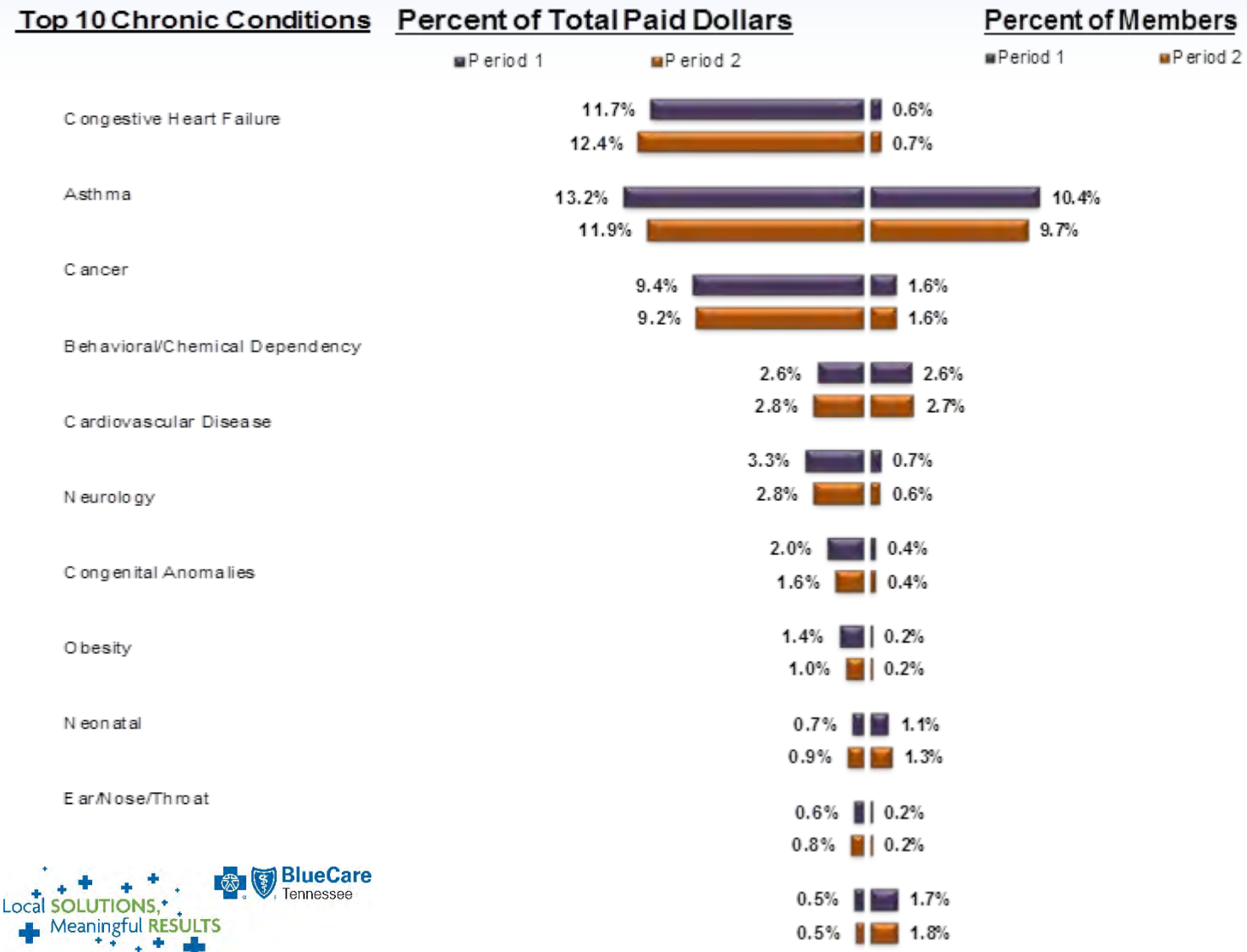
Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee

Primary Chronic Disease Incidence and Cost

BlueCare All *(excluding Select Kids, CHOICES, Select Community, BC Plus)*

Ages 4 and Under



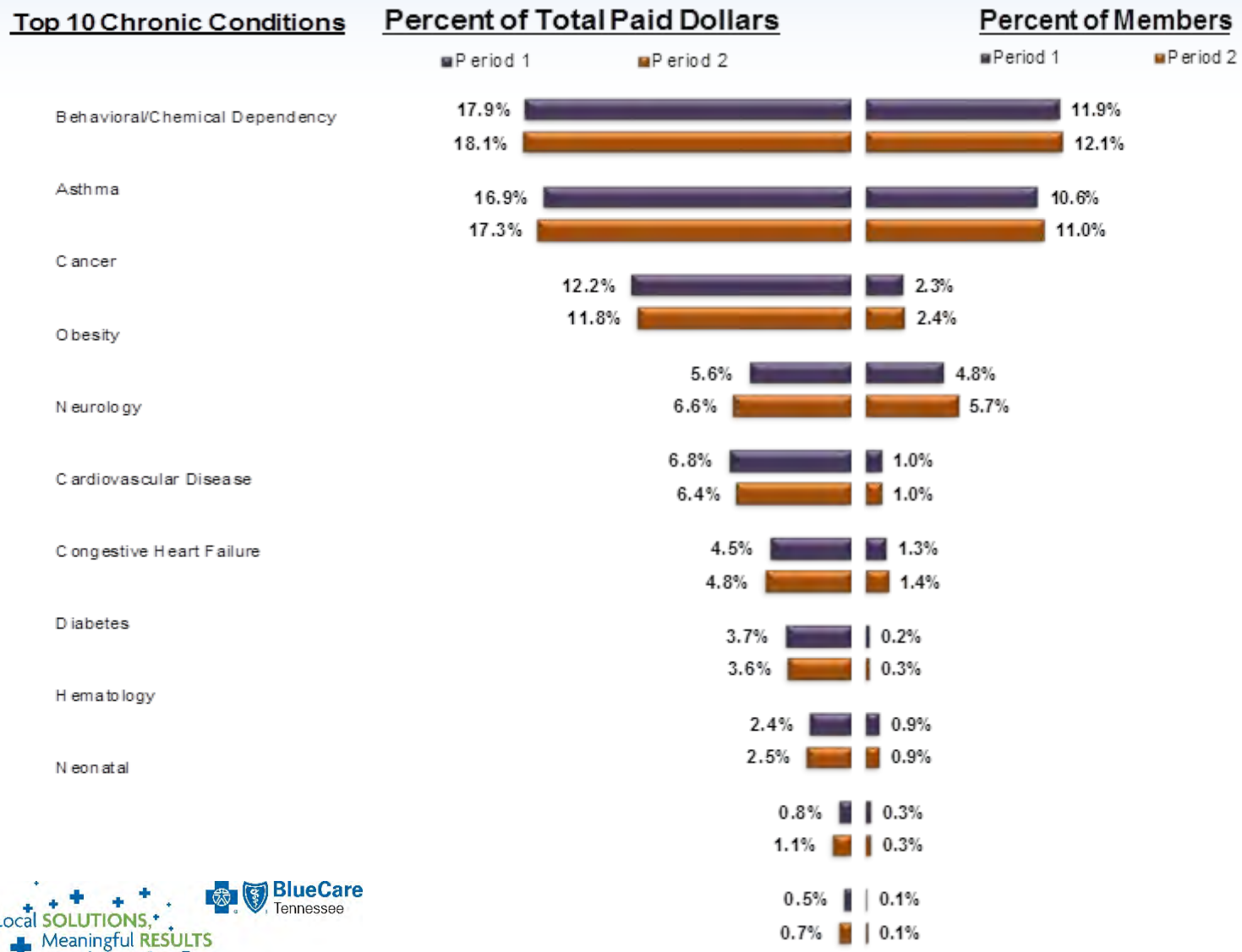
Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee

Primary Chronic Disease Incidence and Cost

BlueCare All *(excluding Select Kids, CHOICES, Select Community, BC Plus)*

Ages 5 to 20



Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee

Problem

- An individual's care is often fragmented and treatment compliance is difficult to evaluate.
- It may be difficult and challenging for primary care providers to ascertain what monitoring or medications are lacking for each patient/member.
- Members may seek care for their asthma in multiple settings (primary practitioner office, specialist office, hospital, home health care, emergency room, community outreach events/health fairs) and therefore the primary practitioner may not have a comprehensive picture of the member.

Identified Barriers from 2015 Analysis

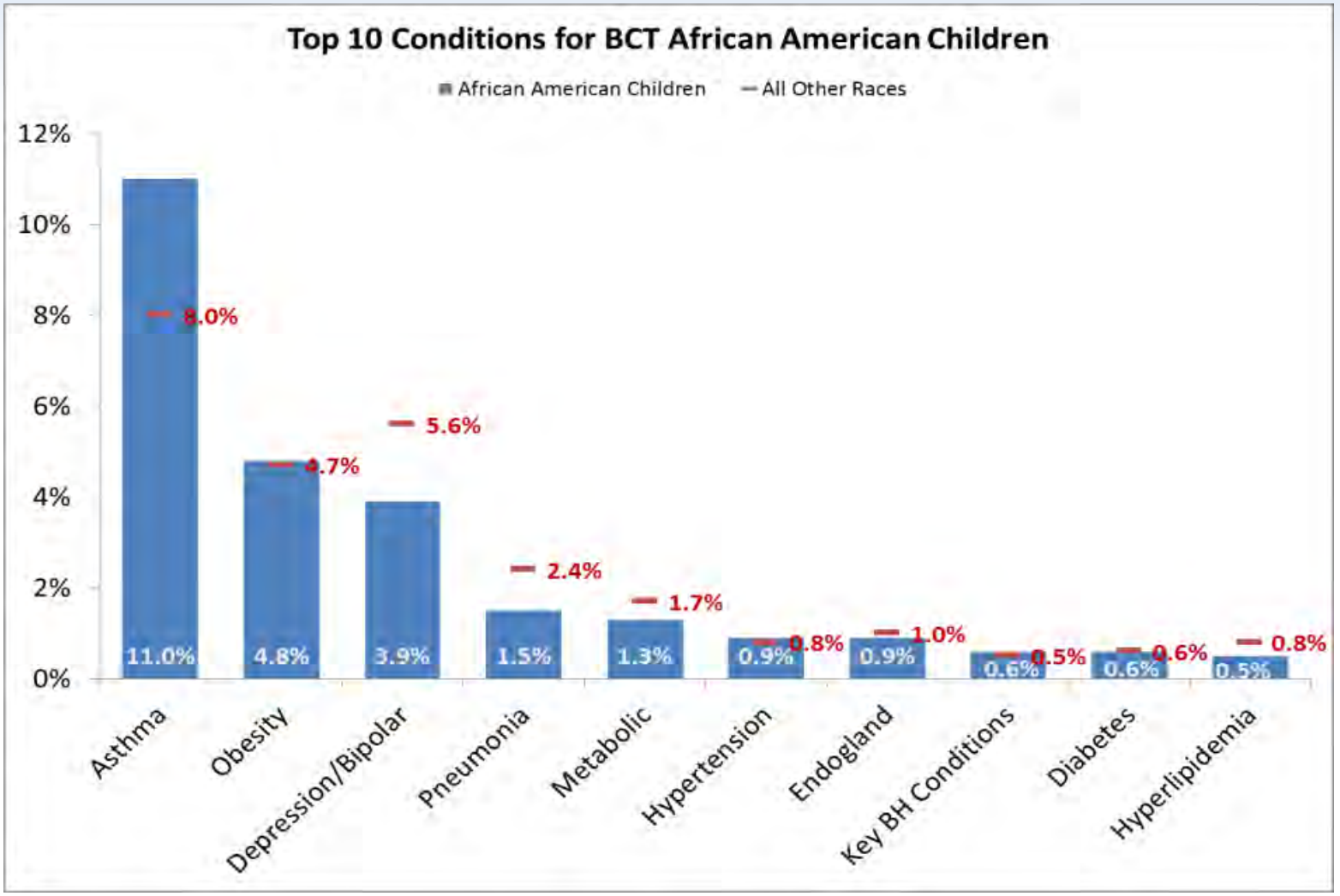
- Impact of healthcare disparities
- Member/parent or guardian non-compliance / failure to adhere to treatment recommendations and obtain appropriate follow-up care
- Members are unreachable / failure to show for scheduled appointments/case manager is unable to contact them
- Lack of provider awareness / lack comprehensive picture of member behavior / ED utilization and follow up
- Inability to adequately assess home environment and remediate triggers

Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee

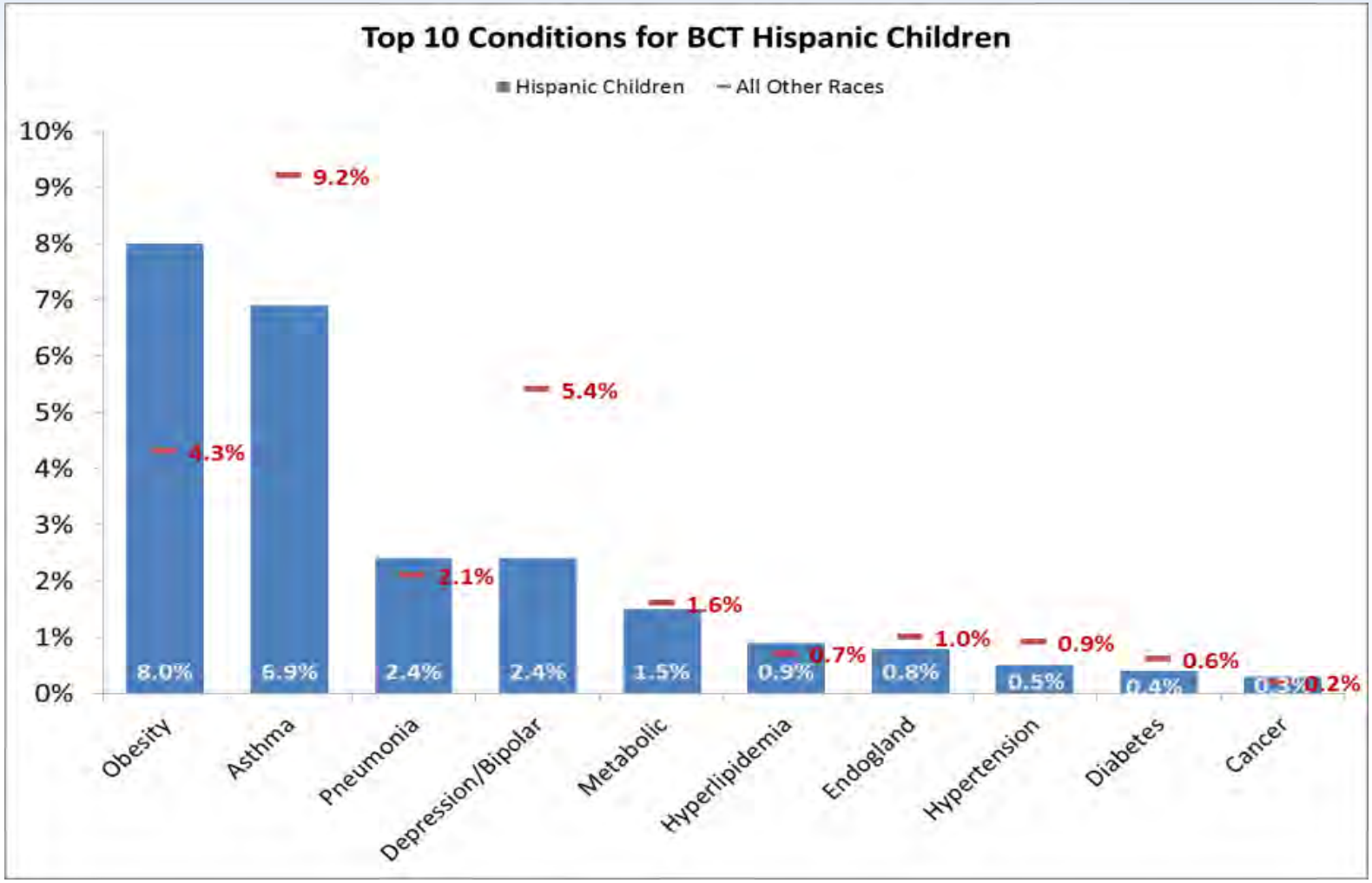
Analysis of Disparities in our Population

- Disparities in health care and outcomes exist across all diseases or conditions for many reasons.
- The National Healthcare Quality and Disparities Report found that people in poor households experienced the largest number of healthcare disparities.
- BlueCare of Tennessee has a vested interest in identifying and addressing healthcare disparities among its membership. We do an annual assessment of key conditions is necessary to determine the scope of the disparities found in the our population.



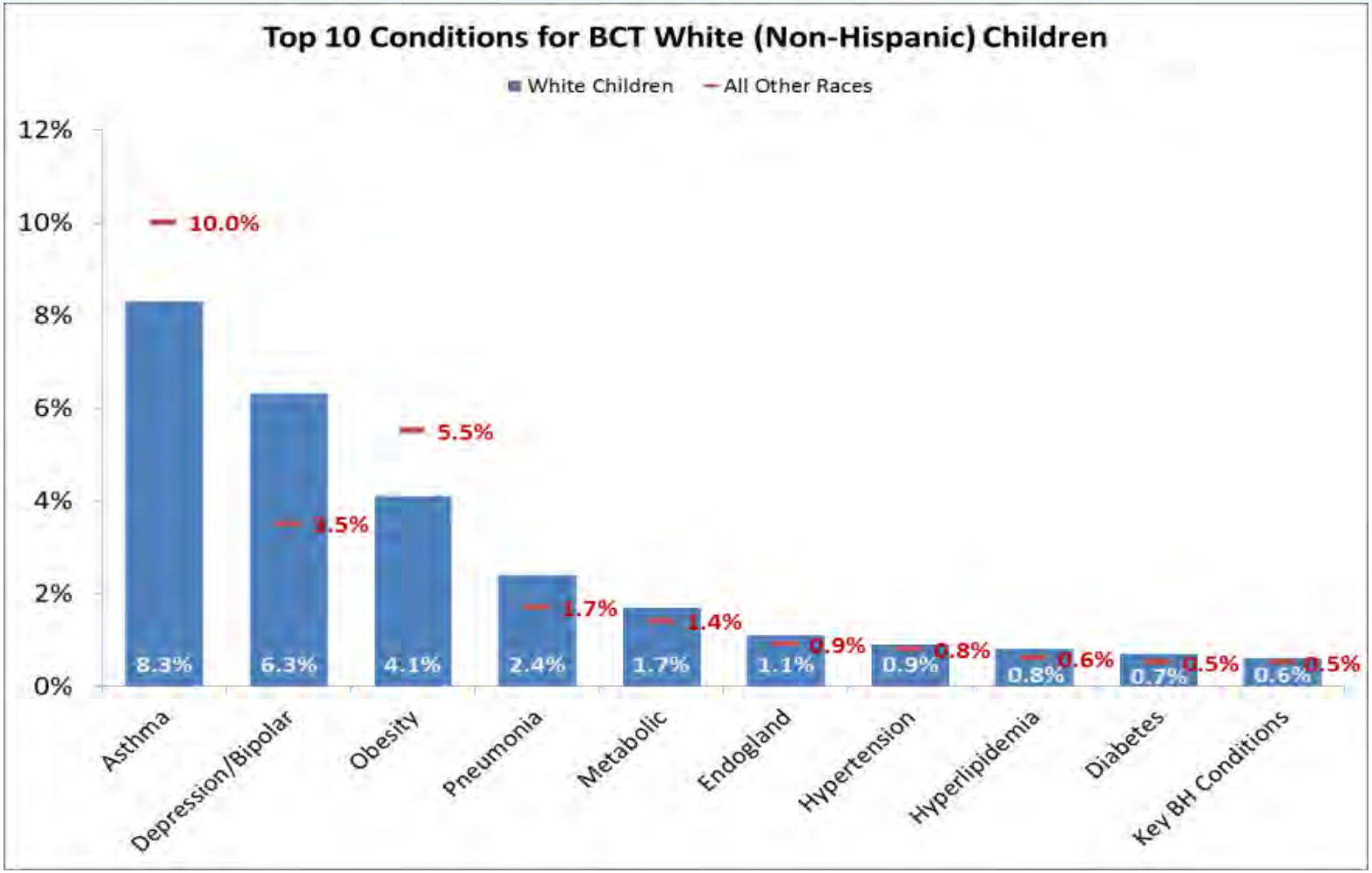
Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee



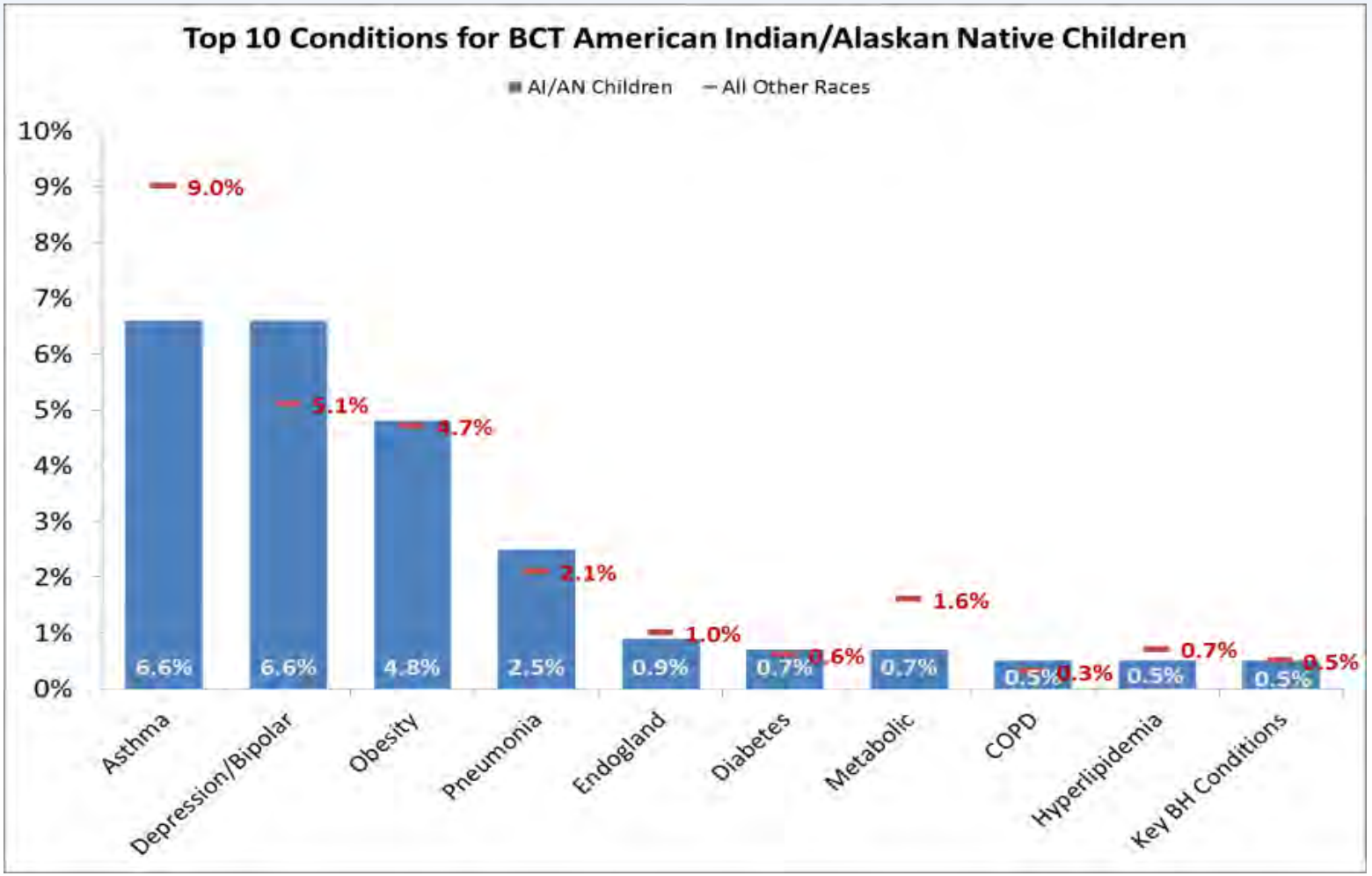
Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee



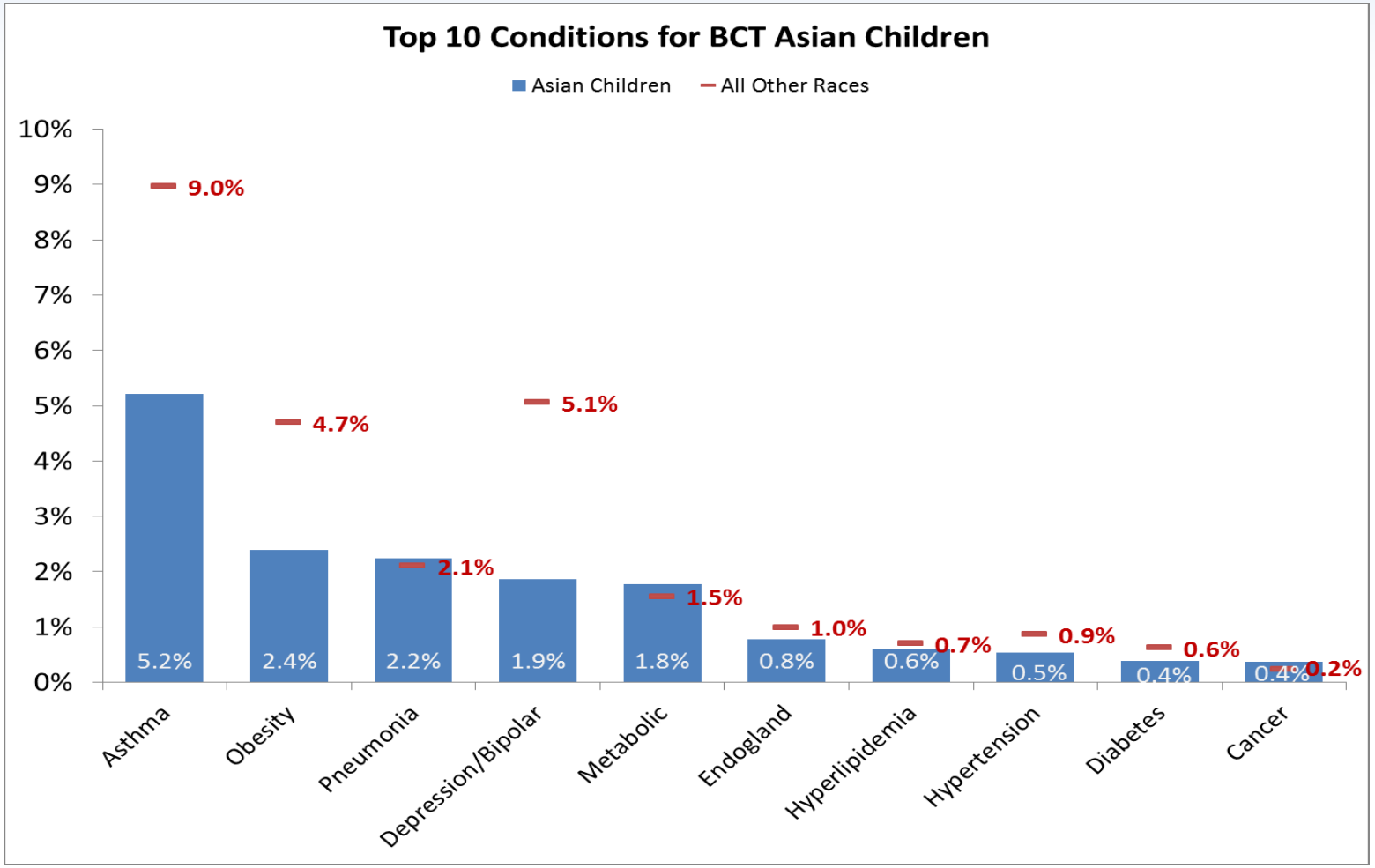
Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee



Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee


Top 10 Conditions for BCT Asian Children
Asian Children
All Other Races
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
9.0%
4.7%
5.1%
2.1%
1.5%
1.0%
0.7%
0.9%
0.6%
0.2%
5.2%
2.4%
2.2%
1.9%
1.8%
0.8%
0.6%
0.5%
0.4%
0.4%
Asthma
Obesity
Pneumonia
Depression/Bipolar
Metabolic
Endogland
Hyperlipidemia
Hypertension
Diabetes
Cancer

What did we do with this information?

- Identified counties where these populations are.
- Evaluated the delivery system, resources, specialty services available.
- Eliminated telephonic management where possible.
- Deployed our staff living in these communities to ensure our staff matched the makeup/characteristics of the population.
- Coordinated with external partnerships including providers (practitioners, facilities and ancillary service), community partners (housing, food, clothing, medication assistance, financial assistance, child care services).
- Require diversity training for all staffat hire and annually.
- Established a disparities advisory panel in each region to better understand the population and gain insight into best ways to reach the population.

Interventions (Actions for Improvement)

- Improve the coordination of care
  - PCP follow after 3 or more asthma related ED visits in 3 months.
    - Outreach to member/parent/school
    - Engage PCP
    - Assess member – Face to face
    - Facilitate the coordination of care and exchange of information between the ED, PCP and the home health care.
  - Place embedded care coordinator in 2 high volume pediatric provider offices (Memphis - 2013 and Johnson City - 2015) and in 33 PCMH practices to facilitate the coordination of the members care.
  - Developed a pilot program to coordinate with school health services. Implemented for 2016/2017 school year.

We are continuing efforts to change the trend

- Educational outreach – local, face to face
- Support of in-school clinics/telemedicine
- Community resources/coordination
- Disparity advisory panels
- Payment for home health visits for education
- Payment for home environmental assessments
- Plan for payment of home remediation (CEA)
- Initiatives to incentivize both the member and the provider.
  - Pay for gaps
  - Pharmacy calls to members

Local SOLUTIONS, Meaningful RESULTS

BlueCare Tennessee

Asthma CarePartners

An Innovative Care Management Collaboration

Family Health Network
and Sinai Urban Health Institute

September 13, 2016

Agenda

1. FHN and SUHI Introductions
2. Sinai Asthma Initiatives
3. Asthma CarePartners Program
   - Components
   - Outcomes
4. FHN/Payer's Perspective
5. Recommendations for Sustainability

Family Health Network

- **FHN's mission is to "*provide access to cost effective quality health care for people who could not otherwise afford it.*" We do so through enrollment in our health plan and also through the support we provide to Safety Net Providers.**
- **Our Vison is "*To be the health plan of choice in our market and the leader in improving health outcomes.*"**
- **Founded in 1995, FHN is the only <u>not-for-profit</u> health plan in Illinois.**
- **Serving over 240,000 FHP/ACA members in northern Illinois.**
- **Founding partner with Sinai Urban Health Institute for Asthma CarePartners program.**

Sinai Urban Health Institute

- Founded in 2000 and is part of Sinai Health System on the west side of Chicago.

- SUHI conducts award winning research that has:
  - Defined the scope and depth of health status and health services access disparities in our communities
  - Led us to design, implement and refine high impact, cost saving community-based intervention strategies for a number of chronic health conditions, including asthma and diabetes

Sinai Asthma Initiatives

- SUHI has implemented a series of nine comprehensive interventions; four are currently underway
- Goals:
  - Decrease asthma-related morbidity and mortality
  - Improve quality of life for people living with asthma
  - Decrease costs
- Each program has built on the successes and shortcomings of its predecessors
- Partner extensively with other organizations

Sinai Asthma Initiatives

Four of the interventions paved way for creation of Asthma CarePartners program:

- Pediatric Asthma Initiative 1: 2000-02
- Pediatric Asthma Initiative 2: 2004-06
- Controlling Pediatric Asthma Through Collaboration and Education: 2006-08
- Healthy Home, Healthy Child: Westside Children's Asthma Partnership 2008-11

- Grant funded and all rigorously evaluated
- Consistent and powerful outcomes

Sinai Asthma Initiatives: Key Lessons

- Issues that impede a family's ability to manage asthma are complex and often require varying areas of expertise.
- CHWs are immensely effective in establishing relationships of trust with the families they serve.
  - Consequently, in the best position to address the barriers families face in properly managing asthma
- CHW approach is associated with significant cost-savings.
  - PAI-1: $7.79 per dollar spent (Group 3)
  - PAI-2: $5.58 per dollar spent
  - CPATCE: $3.38 per dollar spent (Sinai)
  - HHHC: $4.54 per dollar spent

Sinai Asthma Initiatives: CHW Model

- APHA defines a Community Health Worker (CHW) as:

  "…a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served."

- CHWs are the agent of change
- CHWs are hired from the target community
- No prior medical or asthma experience required
- Knowledge of the community and passion to help others
- Host a pre-hire training course prior to interviewing potential CHWs

Training CHWs

- Training and preparing CHWs to conduct home visits is an extensive process that includes:
  - 40 hour CHW core skills curriculum:
    - principles of community health, motivational interviewing, communication skills and collaborating with medical professionals
  - 40 hour asthma training :
    - 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
  - Shadowed by CHW supervisor for three to five visits

Asthma CarePartners (ACP)

- Physician champions assisted in establishing program integration to models of care coordination via Medicaid managed care (FHN) and private insurer (BCBSIL)

FHN Program Referrals:

- Care coordinators stratify members to determine benefit potential, and obtain consent from the member prior to referral:
  - ACT > 19, high risk asthma profile
  - Asthma related hospitalizations, ER visits
  - Medication utilization or non-compliance
  - Expressed need from member, parent, care manager, practitioner

ACP Program Components

- Six CHW visits during the 12 month intervention which include:
  - Home environment assessment
  - Development of Asthma Action Plan (AAP)
  - Asthma Education: Action Plan, Triggers, Medication / Device
  - ACT (Asthma Control Test) administered monthly
  - Follow up phone calls on non-visit months

- Contact with provider, nurse care coordinator and interdisciplinary team

- Partnership with Metropolitan Tenants Organization, a tenants rights group

- Program provides “Healthy Home” resources such as asthma-friendly cleaning kits and/or supplies to control pests, dust mites, mold, etc.

ACP Outcomes

- As of 6/1/16, 1,024 referred to program, 608 enrolled
- Of those participating in the program, 135 had completed the 12-month intervention (99 children, 36 adults)
- Healthcare utilization decreased dramatically and symptoms have been reduced
- Reduction in missed work and school days
- Process measures evaluated

Impact Story

- 8 year-old African American girl

“Gloria is my daughter's asthma care instructor!! Because of Gloria my daughter’s asthma has improved DRASTICALLY!! GLORIA SEALS IS AWESOME!! She knows how to explain the nature of asthma and the importance of the medication!”

“Before Gloria, my daughter and I were lost and in the dark about her illness. My daughter was very quiet and introverted because she was sick ALL THE TIME!! She'd missed 36 days of school and her grades were low. Also Lelah had been to the hospital so many times that the staff knows us by name!!”

Payer Perspective

Program Goals:

1. Maximize participation of high risk members
    - Effective recruitment
    - Retention and completion

2. Achieve Sustainability through the Triple Aim:
    - Improved population health
    - Reduction in avoidable cost
    - Member experience and quality of life

Challenge: Program Recruitment

Barriers

- Referral Goal = 7 /week;
  - Avg = 4.5 / week
- Recruitment Goal = 5/week;
  - Avg = 3 / week

Interventions in Progress

- Careful assessment for program eligibility
- Immediate phone transfer from FHN care coordinator to program intake
- Direct community outreach for hard-to-connect
- Use of “doorhanger” notices to incent call back

Challenge: Program Retention

Barriers

- Goal = 75% at 12 months
  - Avg = 25%

Interventions in Progress

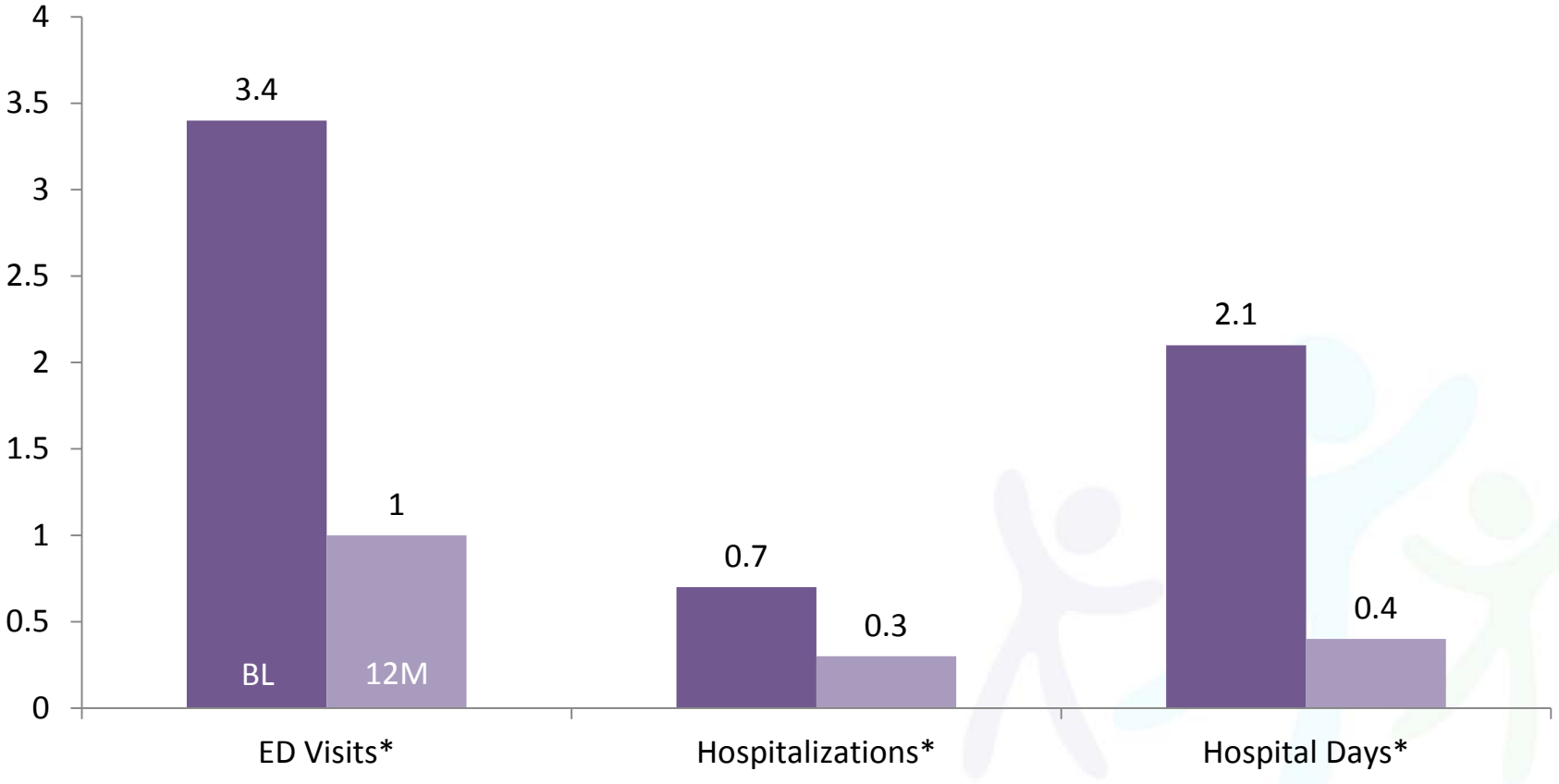
- Close collaboration between SUHI and FHN care teams
- Weekly rounds for case review and barrier analysis
- Systems integration (health plan record)
- SUHI team facilitates redetermination education for member retention at health plan

Tools to Evaluate ACP Outcomes

- ✓ **Asthma Control Test** – measures the degree to which a person's asthma is controlled monthly
- ✓ **Pediatric Asthma Caregivers Quality of Life Questionnaire** – measures the quality of life of the child's primary caregiver (baseline, 6, and 12 months)
- ✓ **Asthma Quality of Life Questionnaire** – measures the quality of life of adult asthma patients (baseline, 6, and 12 months)
- ✓ **Home Environmental Assessment** – evaluates the participant's home environment and identifies triggers in the home (1, 6, and 12 months)

Results: Health Resource Utilization

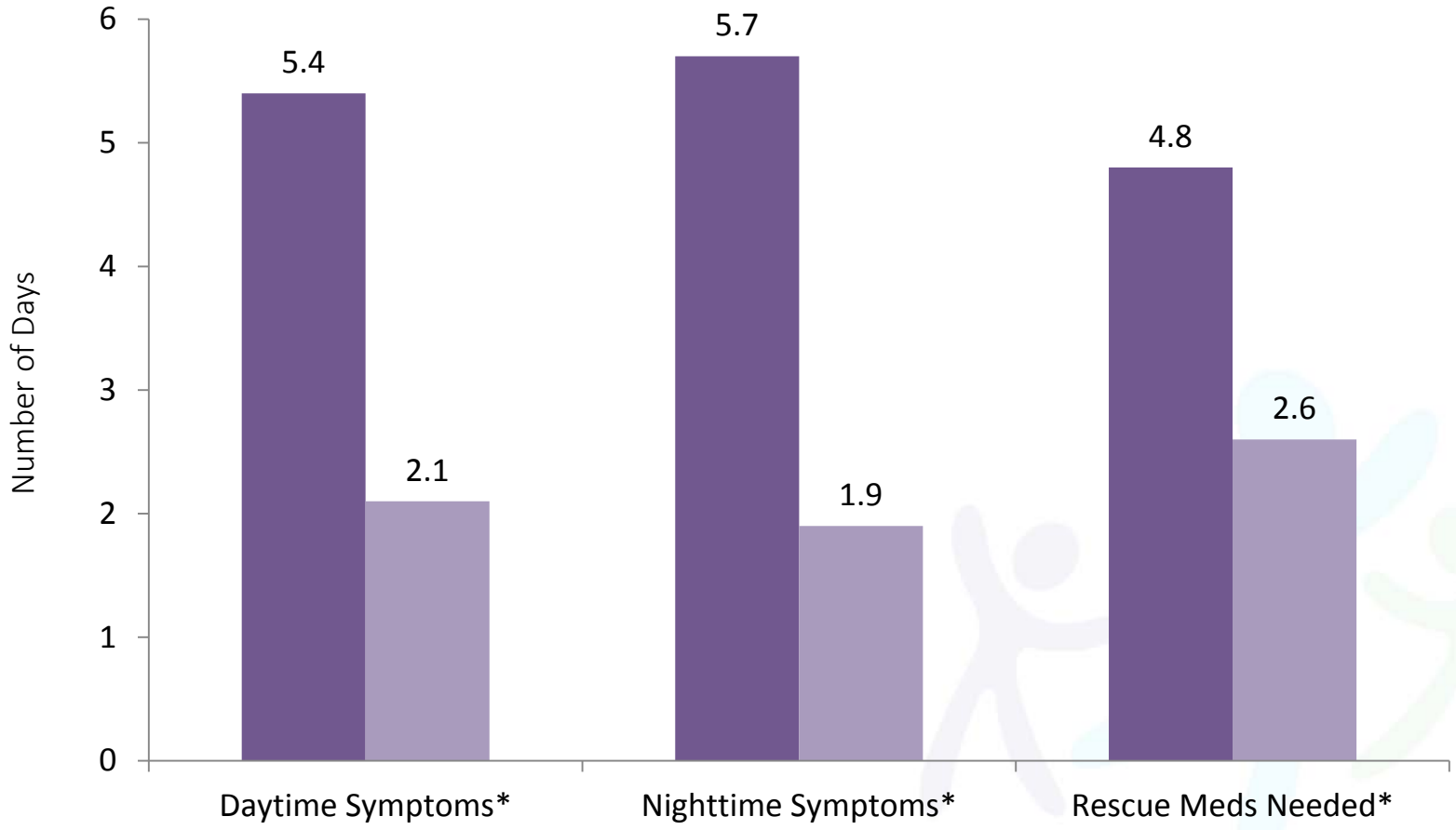
Figure 1: Asthma-related Health Resource Utilization in the Year Prior to and During the Intervention (n=135)



*Statistically significant difference found ($p<0.05$) using Wilcoxon signed-rank non-parametric test

Results: Symptom Frequency

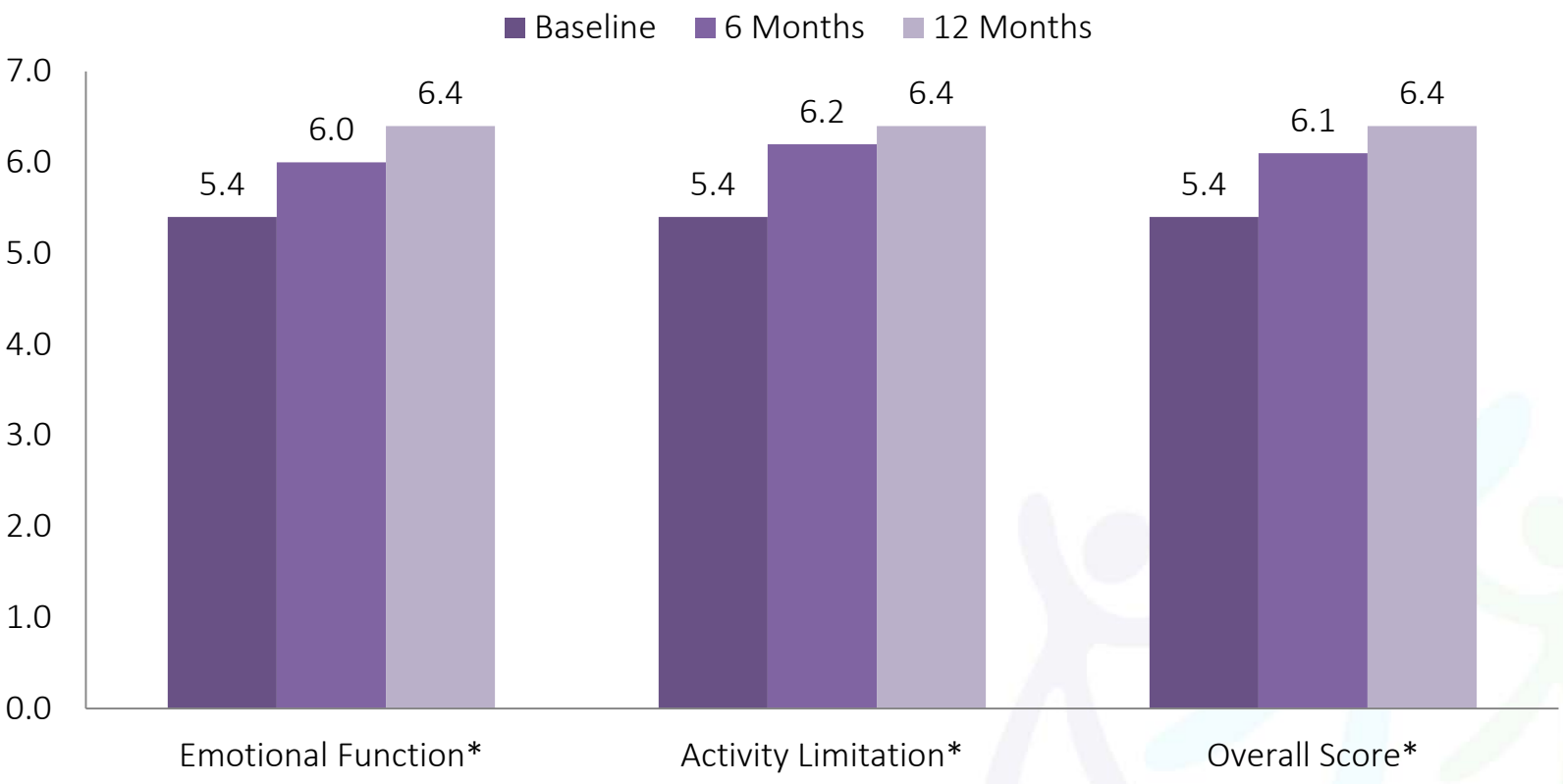
Figure 2: Symptom Frequency in the past 2 weeks at Baseline vs. Average During Follow-up Year (n=135)



*Statistically significant difference found ($p<0.05$) using Wilcoxon signed-rank non-parametric test

Results: Caregiver Quality of Life

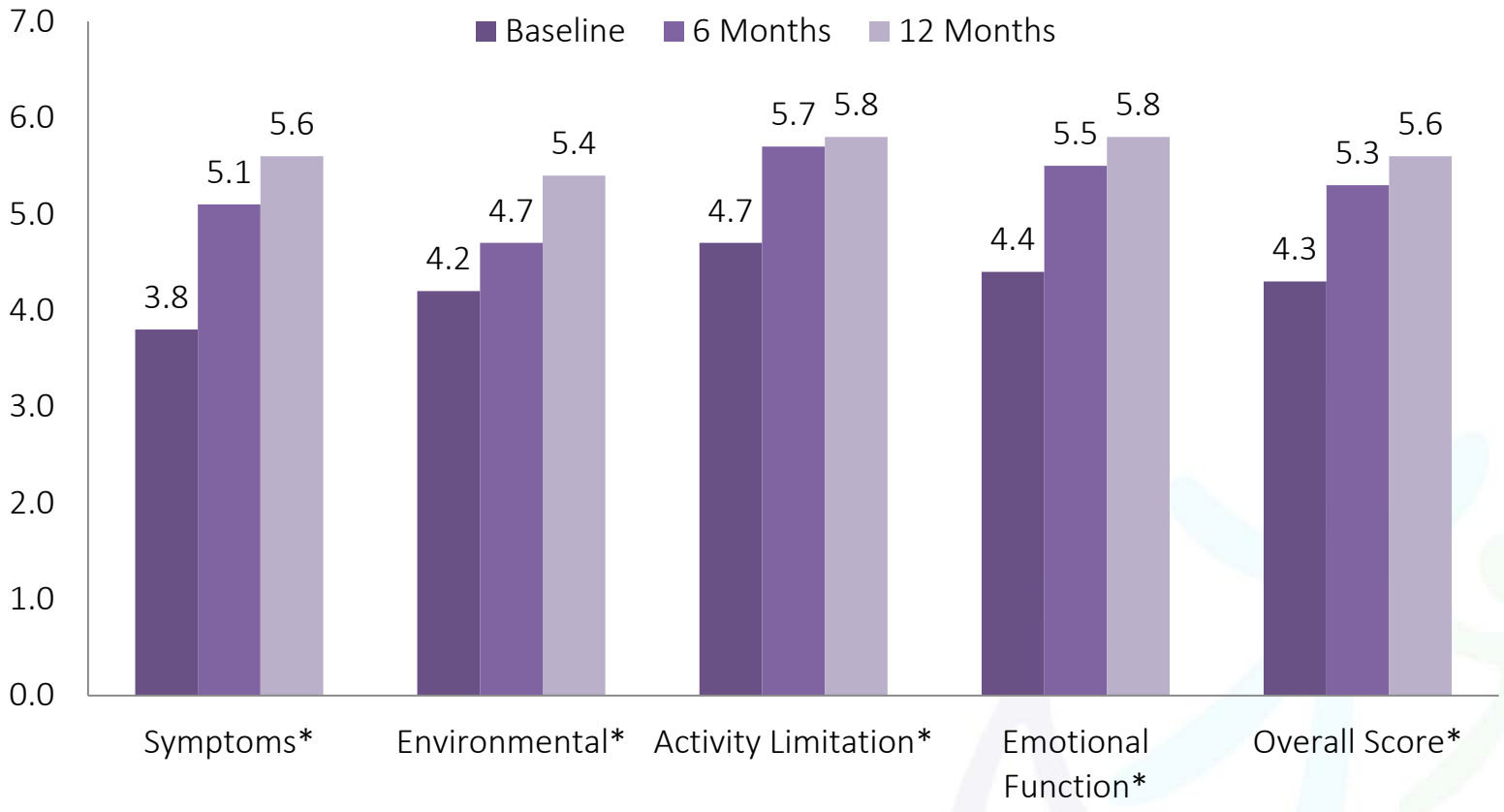
Figure 3: Caregiver Asthma-Related Quality of Life Scores at Baseline and at Twelve Months Following the Intervention (n=84)



* Statistically significant difference found ($p<0.05$) using Wilcoxon signed-rank non-parametric test

Results: Adult Quality of Life

Figure 4: Adult Asthma-Related Quality of Life Scores at Baseline and at Twelve Months Following the Intervention (n=32)



Statistically significant difference found ($p<0.05$) using Wilcoxon signed-rank non-parametric test

Summary

- Statistical improvements for current enrollees in:
  - Health resource utilization
  - Symptom frequency
  - Quality of Life indicators at 6M and 12M (adults and caregivers)

- Cost savings

- Value proposition:
  - Significant opportunity to improve process measures around recruitment and retention through increased collaboration and navigating barriers.

Recommendations

- Find a program champion
- Establish program structure as well as clear program processes
- Build in process and performance measures for impact evaluation:
  - Participant Experience
  - Disease/Health Marker
  - Cost
- Leverage the interdisciplinary team and power of CHW relationships
- Don’t give up!

Contact Information

Julie Kuhn

Program Manager

Sinai Urban Health Institute

julie.kuhn@sinai.org

773-257-2621

Sally Szumlas

Vice President, Population Health & Quality

Family Health Network

sszumlas@myfhn.com

312-995-1899

Panel: Pilot Programs and Perspective on Sustainable Asthma Management Models

OPEN DISCUSSION

Amanda Reddy, Moderator

BREAK

Small Group Discussions

Future Directions and Priorities

Open Discussion

Reflections on the Day

Closing Remarks