



Demonstrating Positive Asthma Outcomes: Collecting and Analyzing Data to Make Your Case

Phone Number: 866-527-8921
Conference ID: 9228608

Demonstrating Positive Asthma Outcomes: Collecting and Analyzing Data to Make Your Case

Moderator

- **Tracey Mitchell, RRT, AE-C**, U.S. Environmental Protection Agency, Washington D.C.

Presenters

- **Kevin Kennedy, M.P.H., CIEC**, Program Director for the Environmental Health Program
Children's Mercy Kansas City, Missouri
- **Ben Francisco, Ph.D., PNP, AE-C**, Associate Teaching Professor, Pediatric Pulmonary
Medicine and Allergy, University of Missouri Health Care, Columbia, Missouri

Tuesday, July 30, 2019

Webinar: 3:00 p.m. – 4:00 p.m. EDT

Live Online Q&A: 4:00 p.m. – 4:30 p.m. EDT

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Question & Answer Session on AsthmaCommunityNetwork.org Discussion Forum



**Immediately after the webinar, join us in the [AsthmaCommunityNetwork.org](https://www.asthmacommunitynetwork.org) Discussion Forum for a live online Q&A Session:
4:00 p.m. – 4:30 p.m. EDT**

To post a question in the **Discussion Forum**, follow these directions:

1. If you are a Network member, log in to your [AsthmaCommunityNetwork.org](https://www.asthmacommunitynetwork.org) account.

Not a member? Create an account at [AsthmaCommunityNetwork.org](https://www.asthmacommunitynetwork.org) by clicking the “**Join Now**” link at the left side of the page. Your account will be approved momentarily, and you can begin posting questions.

2. Click on the “**Discussion Forum**” button on the home page.
3. Click on the “**Live Online Q&A for 7/30/19 Webinar**” link.
4. Click on the “**Add New Forum Topic**” link to post your question.
5. Enter your question and click the “**Save**” button at the bottom of the page.

Polling Question 1



Which type of organization do you represent?

1. Federal, state or local agency
2. Health care provider
3. Health plan
4. Community asthma program
5. Other

Polling Question 2

How do you currently use data in your program?

1. We collect only the most basic data in our program but do not use data to demonstrate results.
2. We are able to use data to show positive outcomes and ROI.
3. We are able to use data to target high-risk individuals to receive in-home services.
4. We are able to translate complex data to improve asthma care for patients with poorly controlled asthma.
5. Other

Learning Objectives

Participants will learn about—

- The basic data framework to show positive program outcomes.
- Using data to help provide in-home asthma environmental assessments and education.
- Translating complex data to improve care for asthma patients.
- Best practices for identifying high-risk individuals through data.

Environment Plays a Critical Role in Asthma Control



- Federal asthma guidelines recognize environmental trigger reduction as a critical component of comprehensive asthma care.*
- The evidence base demonstrates that in-home environmental interventions are effective at improving asthma control in children and adolescents.†

**EPA is a federal lead for integration of
environmental risk reduction into standards of care.**

EFFECTIVE IN-HOME ENVIRONMENTAL INTERVENTIONS

Home-Based

- Includes at least one home visit by trained personnel to improve the home environment
- Examples: community health workers, clinicians, health care providers

Multi-Component

- Includes at least two components, including at least one environmental component
- Activities may include asthma-related education, self-management training, environmental assessment and remediation, social services, coordinated care

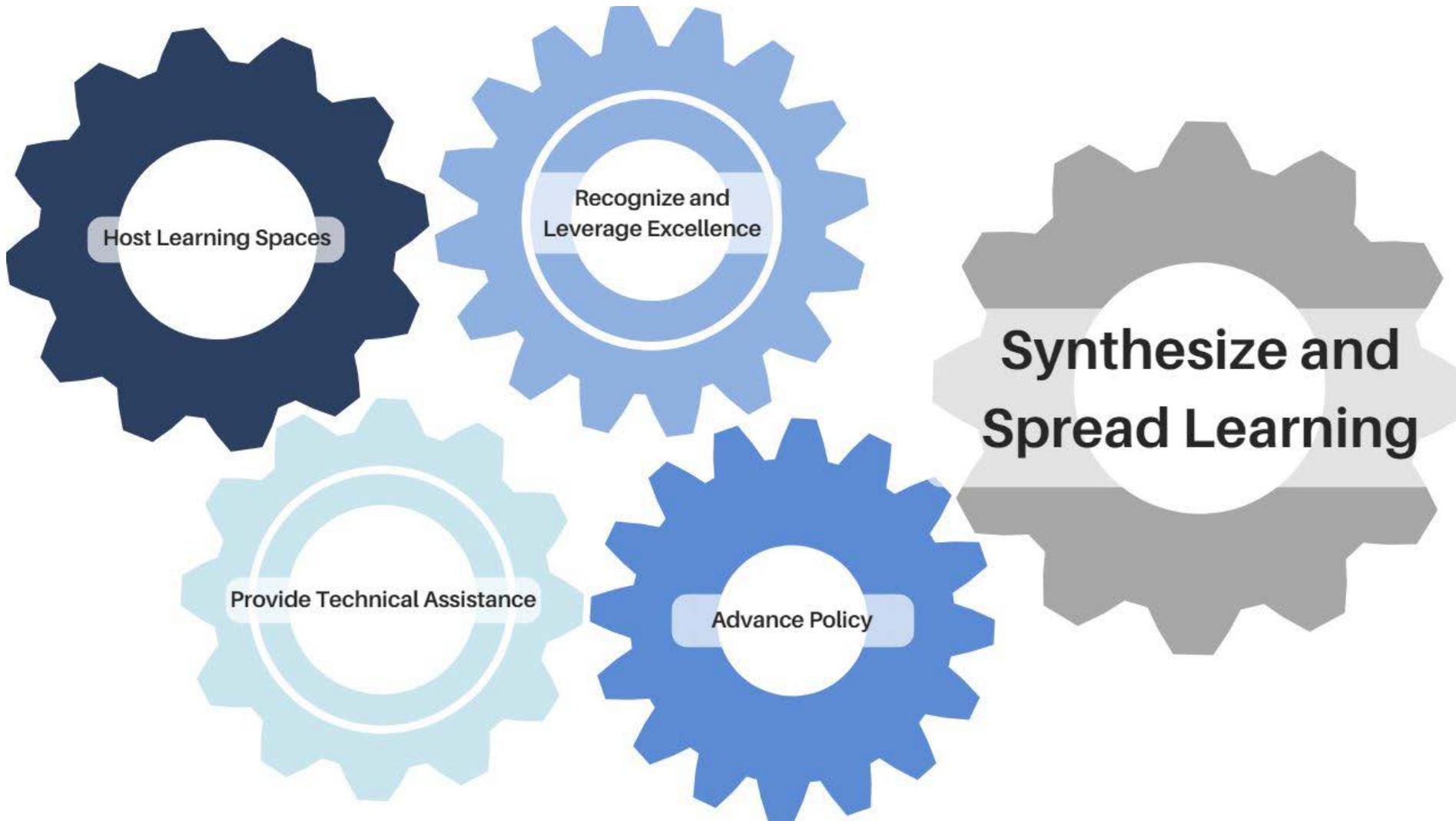
Multi-Trigger

- Targets two or more potential asthma triggers, including mice, cockroaches, dust mites, excess moisture and mold, household pets, tobacco smoke

* NHLBI. 2007. *Guidelines for the Diagnosis and Management of Asthma (EPR-3)*. www.nhlbi.nih.gov/health-pro/guidelines/current/asthma-guidelines

† CDC. 2005. *The Guide to Community Preventive Services*. www.thecommunityguide.org

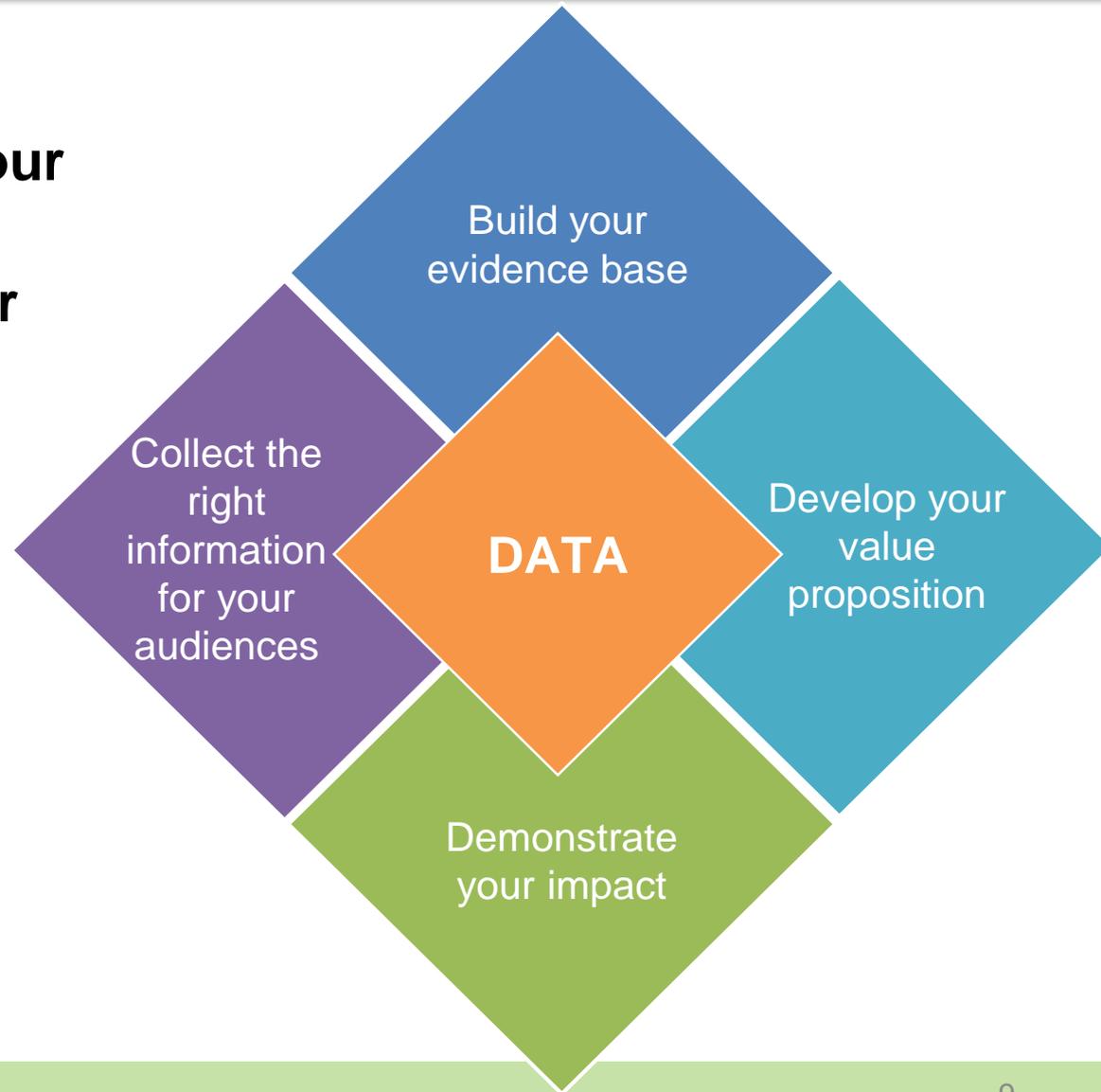
Supporting In-Home Interventions to Bring Asthma Under Control



Data Plays a Critical Role in Demonstrating Your Program's Impact



What data can support our shared goal of securing sustainable financing for in-home asthma care services?



Using Data in Asthma Home Environmental Assessment Programs

Kevin Kennedy, M.P.H., CIEC

Program Director, Environmental Health



2015 Winner—

HUD Secretary's Award
for Healthy Homes



The business case and data analysis is about helping people get better.

It's about Jeremy.





Health Investments That Pay Off: Strategies for Addressing Asthma in Children

Health Care Provider Strategies

for all children who have asthma

Self-management Education

for children who have moderate to severe asthma

**Home visits when
not controlled by
other strategies**

**National Governor's
Association white paper
recommends investing in
home visits for asthma
patients.**

**“Asthma self-
management
strategies should
be targeted to
the intensity of
patient’s needs.”**

How do we evaluate whether our asthma care efforts are helping patients?

What matters?

1. Keys to program development—what do you want to show?
Program impact—patient outcomes, financial outcomes.

2. What has the greatest impact on asthma care costs?
Hospitalizations, emergency department (ED) visits, urgent care, medications for some.

3. To measure impact, calculate return on investment (ROI).
ROI = input or investment vs. savings and health improvement

Can we utilize pilot projects to build a home visit model?

To evaluate impact, use ROI.

“Return on investment” (ROI) is a process of using data about health care service costs for implementing a program compared to the savings from the impact the program has on the patients served.

Why ROI?

- It helps with identifying the population served, cost drivers and opportunities to improve quality while decreasing expenses.
- It is useful for program design, resource allocation and funding, and monitoring and evaluation.
- It uses data and its analysis to move from what you believe a program is doing to computing its real impact.

What data do we need for evaluate ROI?

- Size of target population
- Risk stratification
- Enrollment rate
- Duration of program pilot
- Baseline costs
 - Existing services
 - New program services
- Data types:
 - Health utilization
 - Hospital, ED, medications, procedures
 - Staff labor
 - Cost of education materials
 - Cost of home interventions

Center for Health Care Strategies provides a web-based interactive ROI calculator.

WELCOME TO THE ROI FORECASTING CALCULATOR

Many policymakers and health care payers recognize patient-centered health homes and medical homes as possible solutions to escalating health care costs, fragmented care delivery, and a badly strained primary care delivery system. These strategies can potentially enable more coordinated care, improve health outcomes, reduce avoidable and costly services like emergency department visits and inpatient admissions, provide much-needed financial supports to primary care practices, and ultimately transform primary care delivery. These initiatives vary in design, but generally pay and support health care teams to provide:



- Care management and care coordination;
- Health promotion;
- Transitional care from inpatient and other settings;
- Patient and family support; and
- Referrals to community and social support services.

Policymakers and health care payers across the country are exploring options to invest in these new care models to bend the cost trend. Indeed, health care reform presents an opportunity for Medicaid programs to reimburse for these services for patients with chronic conditions and complex medical and/or behavioral health care needs.

To help stakeholders assess and demonstrate a return on investment (ROI) from health homes and medical homes, the Center for Health Care Strategies (CHCS) developed the ROI Calculator for Health Homes and Medical Homes.

To complete an ROI forecast, you will need to input the following information:

- Timeframe for forecast period and ramp-up
- Size of target population
- Risk-stratification (optional)
- Expected enrollment rate
- Average annual baseline costs for target population, by service category
- Trend (expected growth in health care costs)
- Anticipated changes in utilization patterns
- Estimated program costs
- Discount rate

Help buttons  are provided within the Calculator to assist you in developing a forecast. For additional tips and best practices, a [User's Guide](#) is also available. The Calculator will automatically save your work when you click on the "Next" button at the bottom of each page.

For more information about CHCS, please visit our primary website at chcs.org.

START 

TARGET

Clinical Focus that will be used for enrollment in program.



Size of the Population
Size of the population with condition(s) in program.

Risk Stratification
Population Based



Risk Group
Inpatient groups will be identified for home or medical home program.



Enrollment Rate
Identified target population successfully enrolled in home program.



BASELINE COSTS

Baseline Costs for member:

- Inpatient
- Emergency
- Outpatient
- Office-Based
- Laboratory
- Pharmacy
- Long Term
- Home/Community-Based Services
- Mental Health
- Substance Abuse
- Other
- Total Costs

summarized earlier in the Cost Trends tables. For an increase, **enter a positive number**; for a decrease, **enter a negative number**.

Click here for a compendium of utilization impacts associated with other health home or medical home programs. You may use these data to inform your own assumptions regarding expected utilization changes.

REVIEW HEALTH HOME or MEDICAL HOME PROGRAM RESULTS

	Year 1	Year 2	Year 3	Will Savings/Costs Accrue to Your Organization?
Inpatient	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Emergency Dept	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Outpatient	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Office-Based Care	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Laboratory	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Pharmacy	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Long Term Care	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Home/Community-Based Services	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Mental Health Services	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Substance Abuse Services	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>
Other	<input type="text"/>	<input type="text"/>	<input type="text"/>	Yes <input type="button" value="v"/>

ANALYSIS SUMMARY



[ROI Analysis and Sensitivity Analysis](#) | [Per Member Costs & Savings](#) | [Per Member Per Month Details](#) | [Summary](#)

Forecast Name: Asthma Care Program

Table 1: Target Population

Total Membership in Population Base	3,000
Clinical Focus	Asthma
Target Strata	High Risk, Medium Risk
Outreach Goal	50%
Ramp-up Period	6 months
Total Target Population Members	900
Total Enrollees	450

Table 2: Utilization Assumptions - Cost Increases/Decreases

	Year 1	Year 2	Year 3
Inpatient	-60%	-50%	-30%
Emergency Dept	-50%	-50%	-40%
Outpatient	20%	20%	20%
Office-Based Care	20%	20%	20%
Laboratory	10%	10%	10%
Pharmacy	10%	10%	10%
Long Term Care	0%	0%	0%
Home/Community-Based Services	40%	40%	40%
Mental Health Services	0%	0%	0%
Substance Abuse Services	0%	0%	0%
Other	0%	0%	0%

Detailed summaries of programs and reported ROIs are available.

Clinical Commentary Review

Economic Evidence for US Asthma Self-Management Education and Home-Based Interventions



Joy Hsu, MD, MS^a, Natalie Wilhelm, BA^b, Lillianne Lewis, MD, MPH^c, and Elizabeth Herman, MD, MPH^d *Atlanta, Ga; and Boston, Ma*

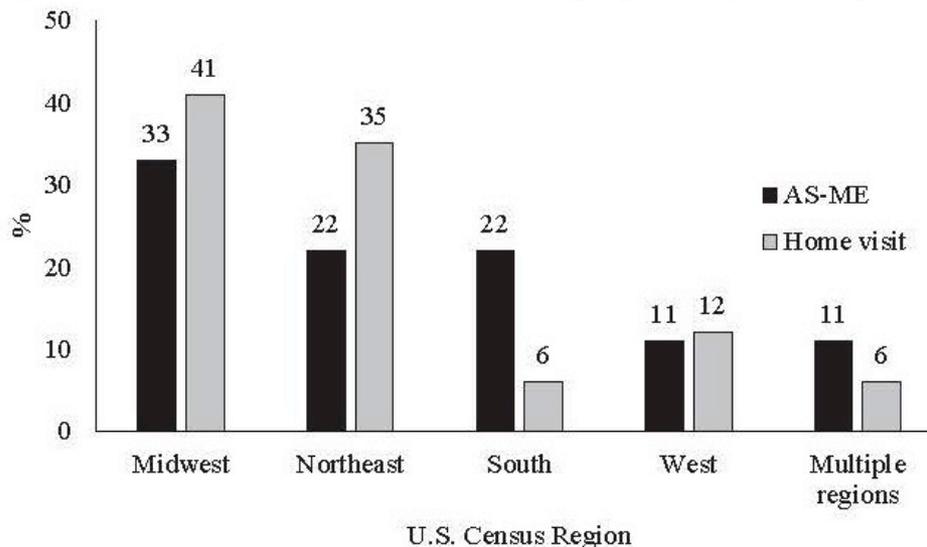


FIGURE E1. Geographic Distribution of Intensive Outpatient Asthma Self-Management Education (AS-ME) and Asthma-Related Home Visit Programs in the United States.

Hsu, et. al., Economic Evidence for US Asthma Self-Management Education and Home-Based Interventions, 2016, *J Allergy and Clinical Immunology in Practice* 4 (6), 1123-1134.

Many asthma care programs included home visits and showed significant ROI.

- 42 programs identified: Nine outpatient ASME programs and 17 home-based intervention programs reported ROI data.
- Most programs were associated with a positive ROI.
- A few programs observed positive ROIs only among selected populations (e.g., higher health care utilization).
- Interpretation limited by heterogeneous ROI calculations.

TABLE I. US programs with ROI data for intensive outpatient AS-ME, by state*

State	Intervention	Health care utilization	Study	Outcome	Study design
Arkansas				per \$1	Pre-post
California	<ul style="list-style-type: none"> AS-ME: 1 group session (~20 min) + individual AAP Case management Linkage to PCP or allergy consult (if indicated); nurse; \$21,772 intervention AS-ME: 1 group session (~20 min) + individual AAP Linkage to PCP or allergy consult (if indicated); nurse; \$21,772 intervention 	<p><i>Average among G1-G3:</i></p> <ul style="list-style-type: none"> Group 1 (G1): AS-ME in 1 group session (~20 min) + individual AAP Group 2 (G2): G1 intervention + phone access to asthma educator Group 3 (G3): G2 intervention + case management; CHW, nurse; \$94/child for G1, \$141-\$155/child for G2, \$389-\$663/child for G3 <p>↓ ED visits by 64%</p> <p>↓ hospitalizations by 81%</p> <p>↓ outpatient visits by 58%</p>	<p>G1 ROI: \$43.64 per \$1</p> <p>G2 ROI: \$27.66-\$30.46 per \$1</p> <p>G3 ROI: \$7.79-\$13.29 per \$1</p> <p><i>Time to realize ROI:</i> 2 y§</p>	Pre-post	T
Illinois	<ul style="list-style-type: none"> AS-ME: ≥1 nurse visits for individual families AAP Case management Education on trigger reduction Review of inhaler and peak flow meter technique Linkage to PCP or allergy consult (if indicated); nurse; \$190 PMPM 	<p>↓ ED visits by 57%</p> <p>↓ hospitalizations by 75%</p>	<p>ROI: \$6.49 per \$1</p> <p><i>Time to realize ROI:</i> ~3 y§</p>	RCT	post
Massachusetts	<ul style="list-style-type: none"> AS-ME: 3 group sessions (6-10 persons each) Education on asthma triggers and inhaler technique Relaxation exercises; nurse; \$89/person 	<p>↓ ED visits by 59%</p>	<p>ROI: \$22.50 per \$1</p> <p><i>Time to realize ROI:</i> 1 y</p>	RCT	T
Michigan	Self-Management Program for Adult Asthma (1986-1987)				T

TABLE I. (Continued)

Intervention(s); Personnel; Program cost	Health care utilization outcome†	Economic outcome‡	Study design	Study design
<p>State: Program (dates) New York: Open Airways (1986)</p> <ul style="list-style-type: none"> AS-ME: 6 group sessions for families (10-15 families each) in clinic; health educator; \$1,558 per family 	<p><i>Among all participants:</i> No difference in ED visits or hospitalizations</p> <p><i>Among children with ≥1 hospitalization in the past year:</i> ↓ ED visits by 59% ↓ hospitalizations by 58%</p>	<p>ROI (among all participants): \$0.62 per \$1</p> <p>ROI (if ≥1 hospitalization in the past year): \$11.22 per \$1</p> <p><i>Time to realize ROI:</i> 2 y§</p>	RCT	RCT
<p>North Carolina: Asthma Self-Management Program (1997)</p> <ul style="list-style-type: none"> AS-ME: 8 group sessions Education on communication strategies with clinicians, inhaler use, and trigger reduction 	<p>↓ ED visits</p> <p>↓ urgent care visits</p>	<p>ROI \$2.54 per \$1</p> <p><i>Time to realize ROI:</i> 3 y§</p>	Pre-post	Pre-post
<p>Ohio: Self-Management Program for Adult Asthma (circa 1997)</p> <ul style="list-style-type: none"> Supplies (asthma journal, peak flow meter, relaxation tape); NR; ~\$450 per participant 	<p>↓ hospitalizations</p>	<p>ROI: \$2.28 per \$1</p> <p><i>Time to realize ROI:</i> 2 y§</p>	Pre-post	Pre-post
<p>Multistate: National Cooperative Inner-City Asthma Study (1997)</p> <ul style="list-style-type: none"> AS-ME: 7 group sessions Asthma diary Education on peak flow meter use; NR; \$208 per participant 	<p>↓ hospitalizations</p>	<p>ROI (all participants): <\$1 per \$1</p> <p>ROI (if ≥1 hospitalization or ≥2 unscheduled visits in the past 2 mo): >\$1 per \$1</p> <p><i>Time to realize ROI:</i> 2 y</p>	Pre-post	RCT
<p> <ul style="list-style-type: none"> AS-ME: 2 group sessions for caregivers and 2 group sessions for children Linkage to community resources Review of inhaler technique Supplies (bedding encasements) Physicians received spacer, peak flow meter, EPR-3, and blank AAP for each child; social worker ± exterminator¶; average \$337 per child </p>	<p>↓ hospitalizations</p>	<p>ROI (all participants): <\$1 per \$1</p> <p>ROI (if ≥1 hospitalization or ≥2 unscheduled visits in the past 2 mo): >\$1 per \$1</p> <p><i>Time to realize ROI:</i> 2 y</p>	RCT	RCT

AAP, Asthma action plan; EPR, emergency room; NA, not available; NR, not reported.
 *Excludes programs that include home visits.
 †Sample sizes reported herein.
 ‡Quantitative data are provided.
 §Actual time to realize the ROI.
 ¶Participating states/districts: IL, IN, OH, VA.
 ¶Homes of children who were

Children's Mercy Hospital (CMH) Program 2001–2010

Clinical Commentary Review

Economic Evidence for US Asthma Self-Management Education and Home-Based Interventions



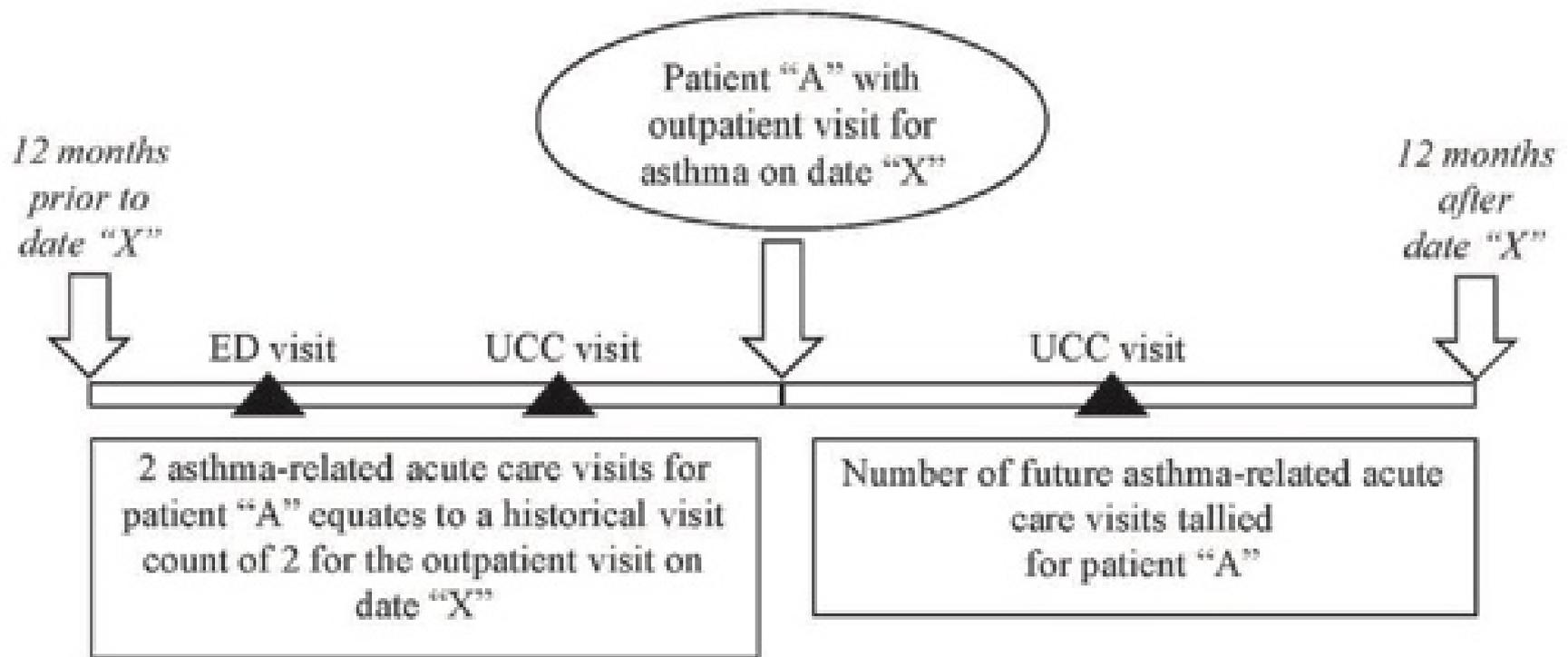
Joy Hsu, MD, MS^a, Natalie Wilhelm, BA^b, Lillianne Lewis, MD, MPH^c, and Elizabeth Herman, MD, MPH^a *Atlanta, Ga; and Boston, Mass*

<p>Missouri: Kansas City Children's Asthma Management Program (2001–2010)</p> <p>Peer-reviewed journal: ^{E50-E52}</p> <p>Other: ^{E53,E54}</p>	<p>Children with asthma and frequent health care utilization (3,700); Medicaid MCO</p> <ul style="list-style-type: none"> • home assessment • AAP • AS-ME • asthma • case ma • provider asthma health s 	<p>↓ ED visits by 44%</p> <p>↓ hospitalizations by 64%</p>	<p>Net savings of \$1.57 PMPM (difference between \$0.43 PMPM program cost and gross savings of \$2 PMPM)</p>	<p>Pre-post</p>
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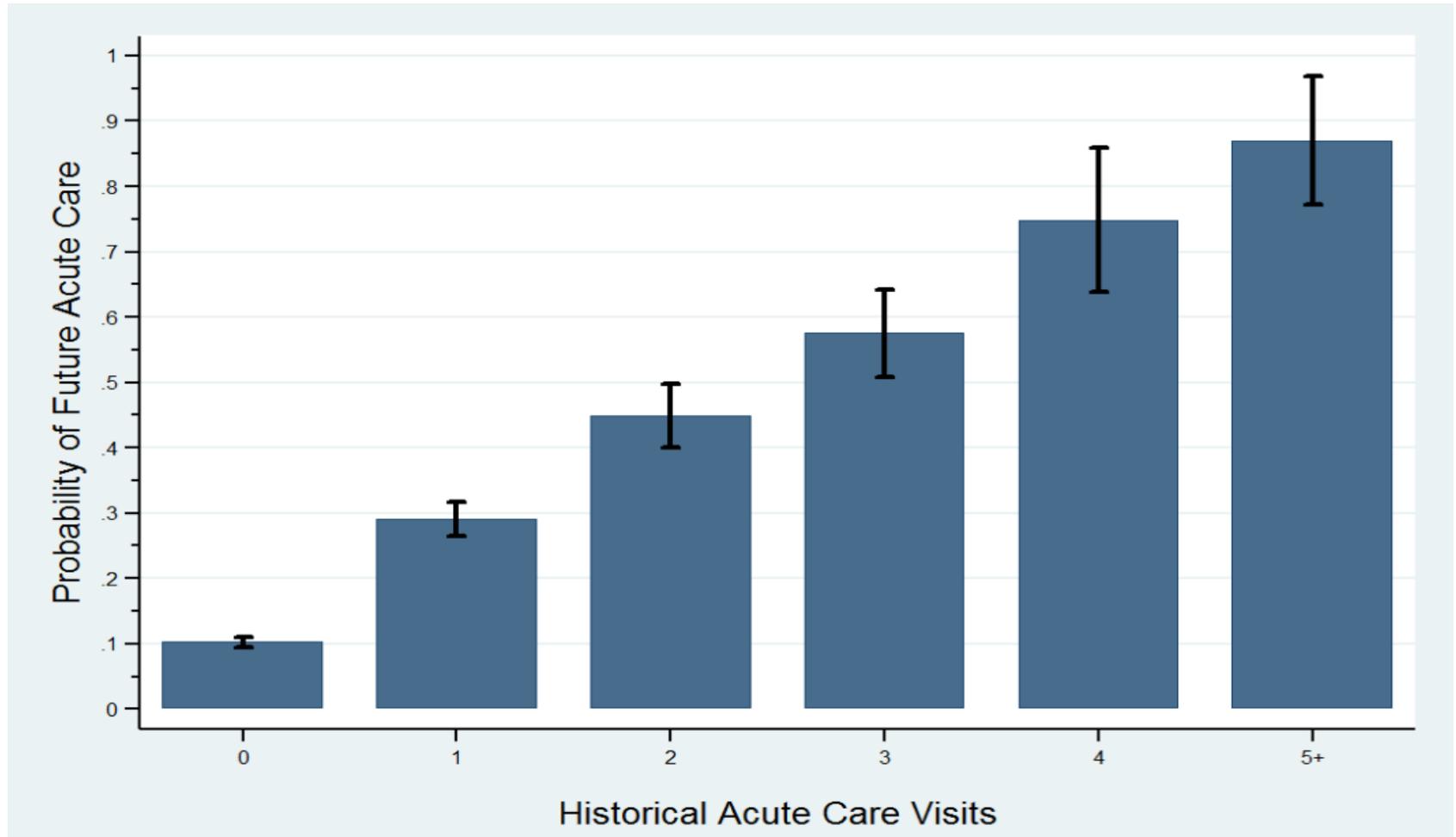
Hsu, et. al., Economic Evidence for US Asthma Self-Management Education and Home-Based Interventions, 2016, J Allergy and Clinical Immunology in Practice 4 (6), 1123-1134.

Predicting Health Care Use in Children With Asthma

- Data from 2009–2013
- 28,047 outpatient visits identified
- Representing 10,785 patients
- 55% ED visits, 25% urgent care, 20% inpatient



Probability of Future Health Care Need for Asthma Patients



Hanson, et. al., Developing a risk stratification model for predicting future health care use in asthmatic children, 2016, *Annals of Allergy, Asthma & Immunology*, 116(1), 26–30.

In 2016, Established the High-Risk Asthma Protocol (HRAP):

Provide consistency of care in the screening and evaluation of patients with asthma who are classified as high risk and ensuring they receive coordinated care involving comprehensive resources associated with improved outcomes.

Elements

- Education
- Inpatient consults offered
 - Guidelines-based asthma action plan
 - ***Environmental health referral***
 - Social work
 - Screen for complications of steroid use
 - Contact PCP

Outpatient Elements

- Education
- Spirometry
- Exhaled nitric oxide
- Asthma Control Test (ACT)
- Allergy testing
- Environmental assessment
- Social work
 - Depression and adherence screening
 - Case management

CMH Asthma Risk Stratification

3 components to determine risk:

- Past: Health care utilization
 - ED visits, hospital PICU, urgent care visits
- Current: Asthma status
 - Asthma Control Test (ACT score)
- Recent: Environmental exposure
 - Tell us about your home.

Determine Total Asthma Risk.

Stratify Service for Efficiency

- Divide home-assessment services into levels based on Total Asthma Risk.
 - ~75% are lower risk patients needing basic assessment services.
 - Visual assessment and in-home education
 - Assessment reporting with issues and actions
 - Follow-up and case management
 - ~25% are higher risk patients needing advanced assessment services.
 - Basic services, plus...
 - Deeper environmental investigation
 - Environmental measurement and sampling

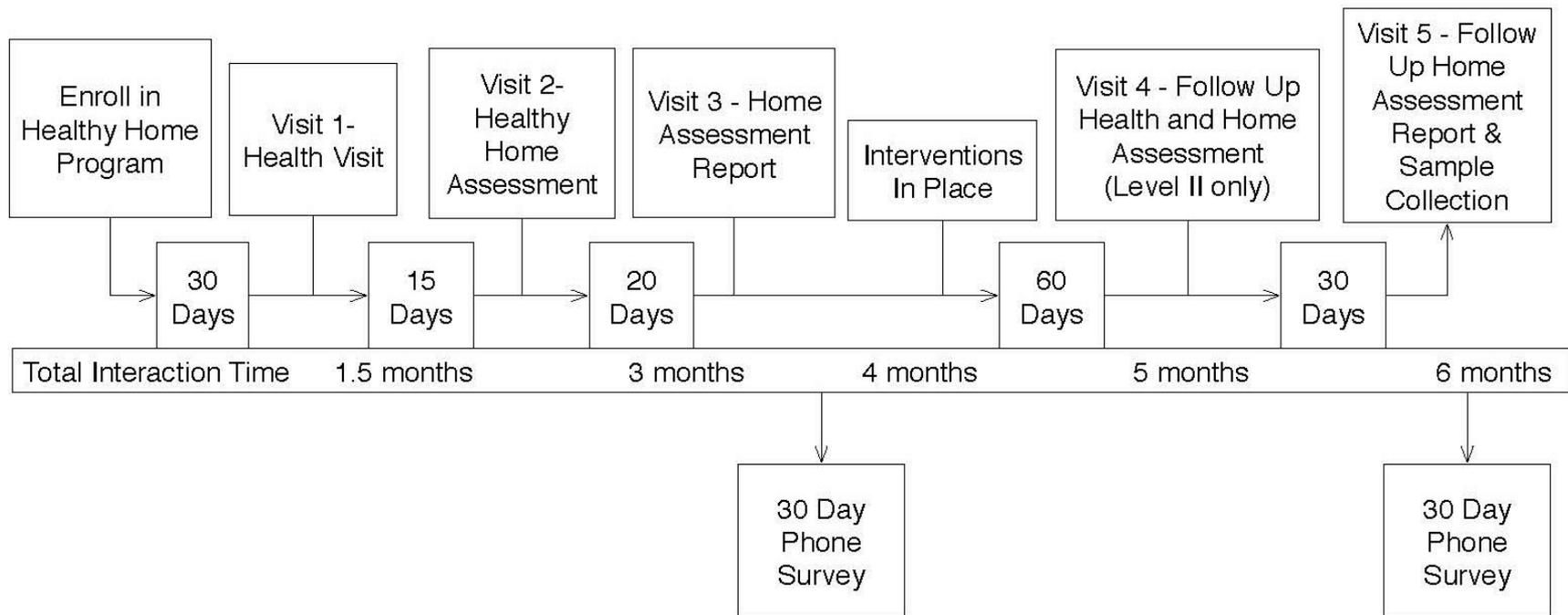
Kennedy et al. 2019. "The Role of Home Environments in Allergic Disease."
Clinical Reviews in Allergy and Immunology.

CMH Asthma-Friendly Home Program

>1,200 families received home visits, including—

- Healthy home education
- Visual environmental assessment
- Indoor environmental assessment (advanced)
 - Air flow and ventilation assessment
 - IAQ gas measurement
 - Dust particle and allergen assessment
 - Moisture and mold assessment
- Home maintenance and product surveys
- Home safety check-up
 - Healthy Home Resource Manual

(Williams D 2010, KCCAMP, RWJ 2007, CHCS 2006, Miller et al. 2003)



Multivisit case management models that include home assessments and in-home education are very useful.

*CDC Task Force. 2010. *Findings and Rationale Statement Interventions for Children and Adolescents with Asthma*. www.thecommunityguide.org/asthma/rrchildren.html

Kennedy et al. 2019. "The Role of Home Environments in Allergic Disease." *Clinical Reviews in Allergy and Immunology*.

We use a multifaceted, multitargeted process.

Healthy Home Assessments

Healthy Home Supplies

Healthy Home Interventions

2.0 Building Assessment: EHA ID #: 000 Date of Site Visit: Saturday, January 03, 1900

Roof	OK	C	TA	NA	Comments	Score
Surface intact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100
No visible surface leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100
Flashing condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100
Evidence of water damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100
Drip edge present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100
Ventilation present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100
Chimney flashing condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100
Roof Score:						100

Exterior Siding

OK	C	TA	NA	Comments	Score	
Surface condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No flaking paint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No leaking/moisture retention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Weatherized w/ no visible gaps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Exterior Siding Score:						75

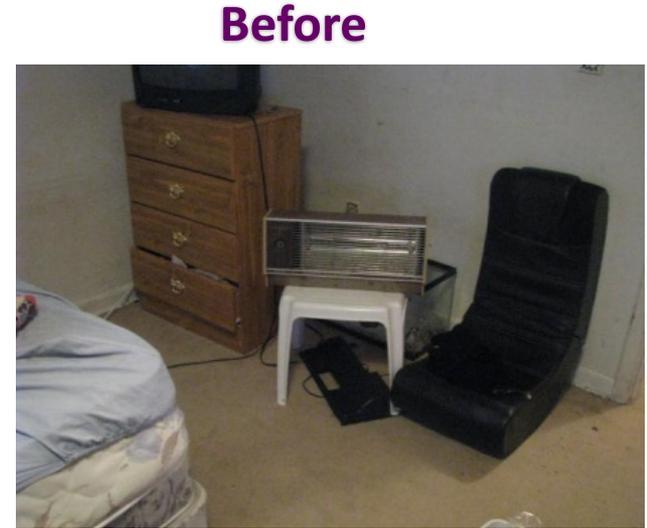
Guttering

OK	C	TA	NA	Comments	Score	
Properly attached and sealed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No flaking paint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No leaking/moisture retention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Downspouts properly installed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Spkath blocks properly installed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Guttering Score:						100

Foundation

OK	C	TA	NA	Comments	Score	
No visible or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No leaking/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Weatherized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No flaking or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No crawling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
if basement is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No visible or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No sewage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Floor drain is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
No flaking p	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		100	
Foundation Score:						100

Photos of Issues



EHA ID #: 0 Date of Site Visit: Saturday, January 03, 1900

1.0 - Environmental Health Issues and Action Summary

The following issues were identified during the Environmental Health Assessment of your home. The issues described below are followed by some specific actions that are recommended to eliminate or minimize the impact an issue may be having on the indoor environmental health of your home. This action plan is intended to provide you with some specific things you can do to fix, when completed, should improve the general health of your home's indoor environment and may improve the overall health of your family.

Issues in the Home and Recommended Actions to take

Issue: Bedding (mattresses), carpeting, plush toys, and upholstered furniture.

Action(s):

- 1) Carpeting had a lot of stains and a few stains were noticed on the furniture. Remove carpeting and upholstered furniture (if possible) and replace with non-porous flooring, wood, or vinyl furniture to decrease allergens.
- 2) If removal of carpeting and upholstered furniture is not possible, vacuum carpet and upholstered furniture with a High Efficiency Particulate Air (HEPA) filtered vacuum frequently each week to help reduce the amount of allergens in the home.
- 3) No dust mites were detected from the child's bedding during the assessment. However, it is recommended to wash the child's bedding and plush toys in hot water (130°F) at least once a week to help decrease any future dust mite populations.

Issue: Cleaning chemicals, candies, found in unlocked cabinets, on shelves in home, and medicines on counter-top.

Action(s):

- 1) Store cleaning chemicals out of reach of children in a safe childproof locked cabinet. Use chemicals when the children are away from the home. Make sure to ventilate the home properly after usage.
- 2) Store all medicines in a locked cabinet and out of reach of the children to prevent any accidental poisoning from occurring. If medicines are expired, dispose of them either through a take-back program at a local pharmacy, hazardous waste site, or possibly regular trash.
- 3) It is recommended not to use scented candles in the home around individuals that may be sensitive to fragrances.

Issue: Only one working Carbon Monoxide (CO) detector and smoke alarm in home.

Action(s):

- 1) Place CO detector between gas appliances (sources) and sleeping areas and replace non-working smoke detector battery.
- 2) Place a CO detector and smoke alarm on each level of the home.
- 3) Test the detectors once a month and replace batteries during daylight savings time changes.

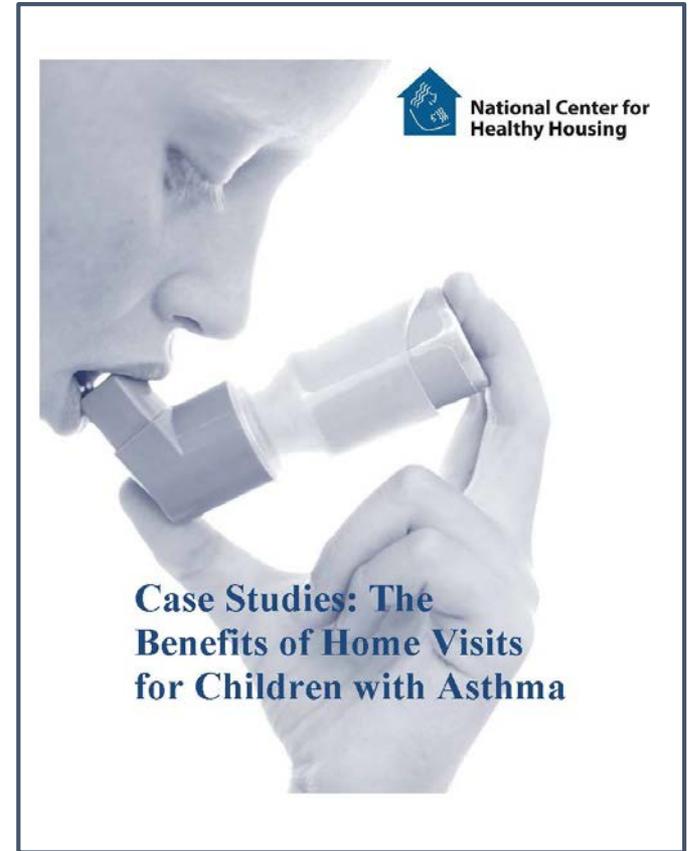
Children's Mercy Hospital © 2008

Healthy Home Actions

LOVE WILL.

**Lots of resources
on programs and
data are here:**

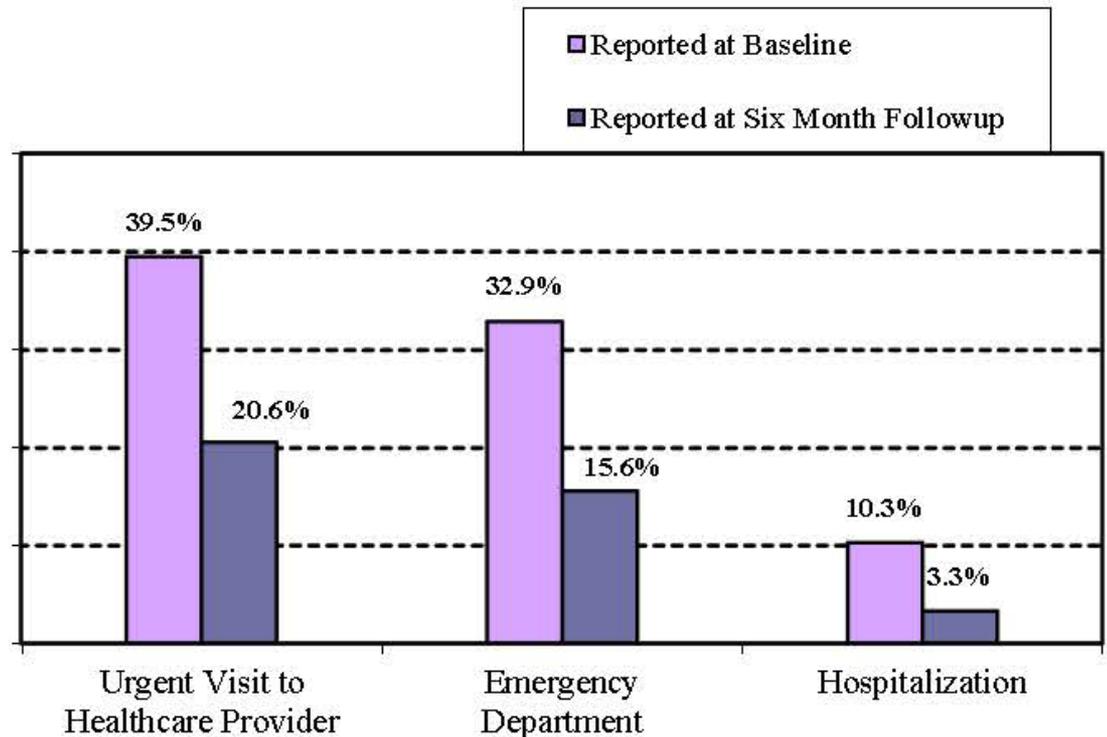
**National Center for
HEALTHY HOUSING**



[www.nchh.org/Resources/HealthcareFinancing/CaseStudies
andResources.aspx](http://www.nchh.org/Resources/HealthcareFinancing/CaseStudiesandResources.aspx)

Michigan Department of Community Health

Cost Benefit (3 years)
Total Program Cost:
\$1,299,207
Net Benefits:
\$2,524,193



Asthma Management Isn't Just ROI

It's about—

- Managing complex co-morbidities.
- Asthma disparities in communities.
- The mission to improve community health.

It's about Jeremy.



Kevin Kennedy, kkennedy@cmh.edu

Environmental Health Program

816-302-8556



Asthma Ready[®] Communities

**Data-Driven Approaches for
Improving Asthma Control
While Lowering Cost**

Focus

- “Using data to support and demonstrate real results in children with uncontrolled asthma and the difference data makes in sustaining your program for long term success.”

Better Care, Better Health, Lower Costs

- What is our goal? We are trying to change...
- Which authoritative sources will guide us?
- What are the evidence-based drivers?
- Our intervention is based on [framework(s)].
- Which outcomes would show success?
- Which data will show progress and outcomes?
- If this works, can it be scaled and sustained?
- Who are our strategic partners?
- How will we show ROI?

Use two Missouri asthma improvement initiatives to illustrate application of these ideas with an emphasis on administrative claims data.

Objective 1

Describe an integrated model for assessing asthma status of individuals that utilizes self-report, community assessment, clinical and claims data.

Objective 2

Propose a population-based approach to match asthma workforce development and service delivery to address local asthma burden for “better care, better health and lower costs.”

Objective 3



Promoting Evidence-Based Asthma Management *A School Nurse Workforce Initiative*

Benjamin Francisco, PhD, PNP-BC, AE-C
Tammy Rood, MSN, CPNP-PC, AE-C
Sherri Homan RN, FNP, PhD
Rebekah Nevel, MD
Bin Ge, MD

University of Missouri
Missouri Department of Health and Senior Services (MO DHSS)

The evaluation of “Teaming Up for Asthma Control” was funded by the Centers for Disease Control and Prevention (CDC), Cooperative Agreement #5U59EH000510-05.

Need Assessments

- 2003 survey by MO DHSS to determine the training/resource needs of Missouri school nurses
- 2005 web survey of the needs of practicing Missouri school nurses
- 2005 survey of school nurses assessing asthma disability among Missouri students

Bachman, J. A., Brennan, P. F., Patrick, T. B., & Cole, M. 2005. "A World Wide Web-Based Health Resource. Survey of Missouri School Nurses to Determine Priority Health Information Resources for Schoolhealthlink." *Journal of School Nursing* 16(1), 28-33.



Close Gaps in Asthma Care at School

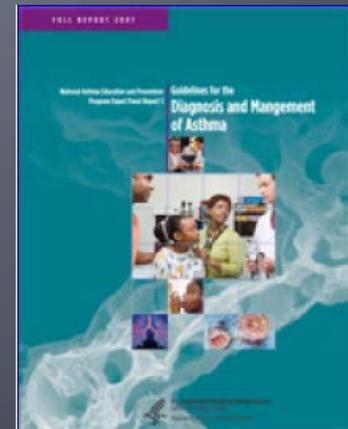
- No uniform asthma training for school nurses
- Lack of peak flow meters and spacers
- Lack of quick-relief medications for students
- No asthma educational materials
- Lack of educational materials for families
- Lack of uniform school asthma-care policies

Goal: Support school nurses
What we are trying to change?

EPR₃ (2007): Rigorous, systematic review of the scientific literature

- 10 committees, dozens of national experts
- 3 years screening 15,444 abstracts
- Reviewed full text of 2,122 articles.
- Found that 1,654 contributed new evidence.
- Constructed 20 evidence tables to analyze data from 316 articles on critical topics.
- EPR₃ recommendations are weighted by evidence level (Categories A, B, C & D).

Authoritative Source



Creating Asthma-Friendly Schools

EPR-3 Recommendations and Priority Messages

Inhaled Corticosteroids

EPR-3 Recommendation: Inhaled corticosteroids (ICSs) are the most potent and consistently effective long-term control medication for asthma. ICSs should be taken on a long-term basis to achieve and maintain control of persistent asthma. www.nhlbi.nih.gov/guidelines/asthma/gip_rpt.pdf

Message for Schools

Parents of school children who have asthma should be aware and educate their children that ICSs are: 1) the preferred medication for persistent asthma, 2) safe for long-term use, 3) shown to reduce the risk of fatal asthma, 4) only effective if carefully inhaled, usually twice daily, into the lungs for several weeks, and 5) should only be discontinued under the advice of a qualified health care provider who can carefully monitor lung function in the following months.



Teaming Up for Asthma Control

- Aim: Improve asthma control in school-age children in Missouri
- Intervention:
 - Promote school nurse competency
 - Clinically relevant assessment of impairment
 - Monitoring and reporting asthma control status
 - Improving student self-care
 - Promote family education, healthy homes



Seven Clinical Steps to Control

(Adapted from "Partners Putting Guidelines Into Action," 2008)

- 1) Prescribe inhaled corticosteroids.
- 2) Provide a written asthma action plan.
- 3) Assess severity, then monitor control.
- 4) Schedule periodic visits and education.
- 5) Use objective measures of airflow.
- 6) Assess/improve inhalation technique.
- 7) Bill for necessary services.

Evidence-Based Drivers

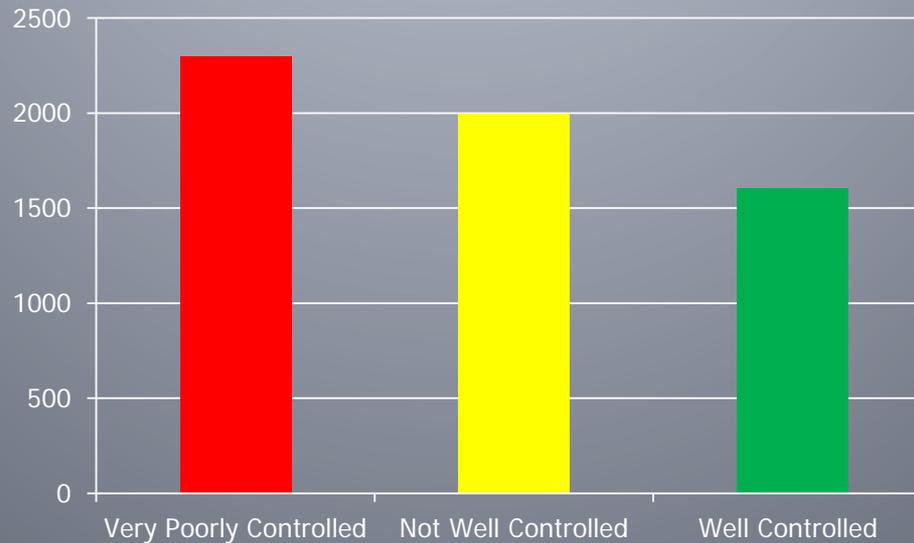
Potential Impact

- Well Controlled
- Not Well Controlled
- Very Poorly Controlled

“Children’s school absences and their parents’ absences from work represented the greatest economic burden of impairment in children with severe asthma” (observational study, 600 children).

Chest Physician, vol. 5:12, p. 21, December 2010

Insurer Medication Costs at 24 Months



- **Very poorly controlled (\$2,298)**
- **Not well controlled (\$1,995)**
- **Well controlled (\$1,606)**

Increase Asthma Assessments

- EPR₃ 1st component “Assessment & Monitoring”
- Reality check—0.5 to 1.6 outpatient visits per year for Missouri Medicaid children with asthma
- Challenge—obtain “Assessment & Monitoring” data at an affordable cost
- Objective—support clinical decision-making, deploy special care and education for high-risk or impaired children

Our intervention is based on “Collective Impact.”

[Collective Impact - Stanford Social Innovation Review](#)

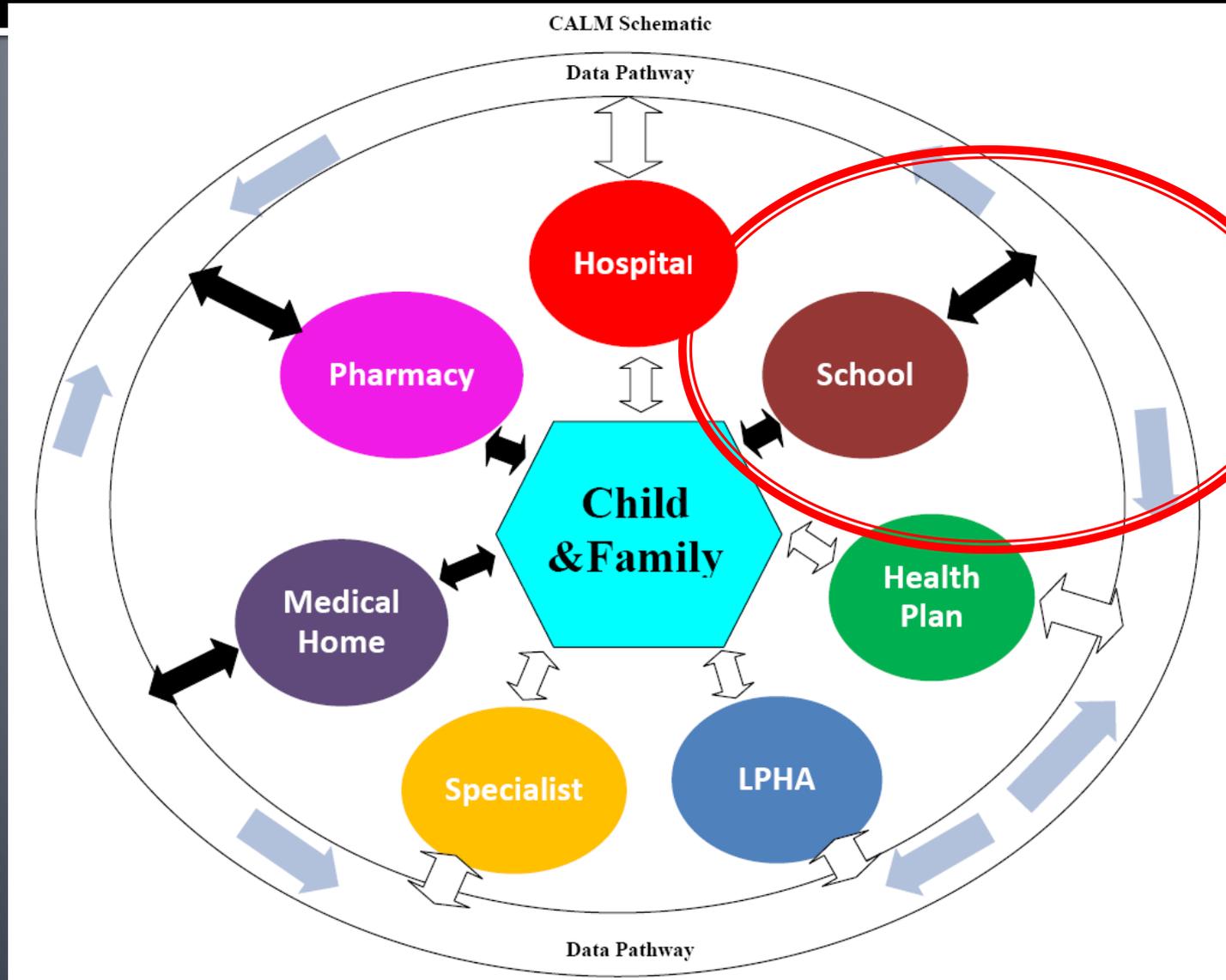
https://ssir.org/articles/entry/collective_impact

“Understanding the Value of Backbone Organizations in **Collective Impact**” ... Unlike most collaborations, **collective impact** initiatives involve a centralized infrastructure, The five types of collaborations are a great conceptual **framework**.

Successful Strategies & Promising Interventions

just do it.

**Asthma
Ready.org**



Align Sustainable Interventions With EPR₃

- Educational messages and self-care coaching

Expert Panel Report 3 (EPR ₃)	Key messages
Assessment/monitoring	Measure airflow (FEV ₁)
Education for self-management	Inhaler identification/training
Control environment/co-morbidities	Avoid triggers, manage co-morbidities
Appropriate pharmacologic therapy	Inhaled corticosteroid improves control

- Expanded reimbursement for providers
 - Opportunity to involve school nurses

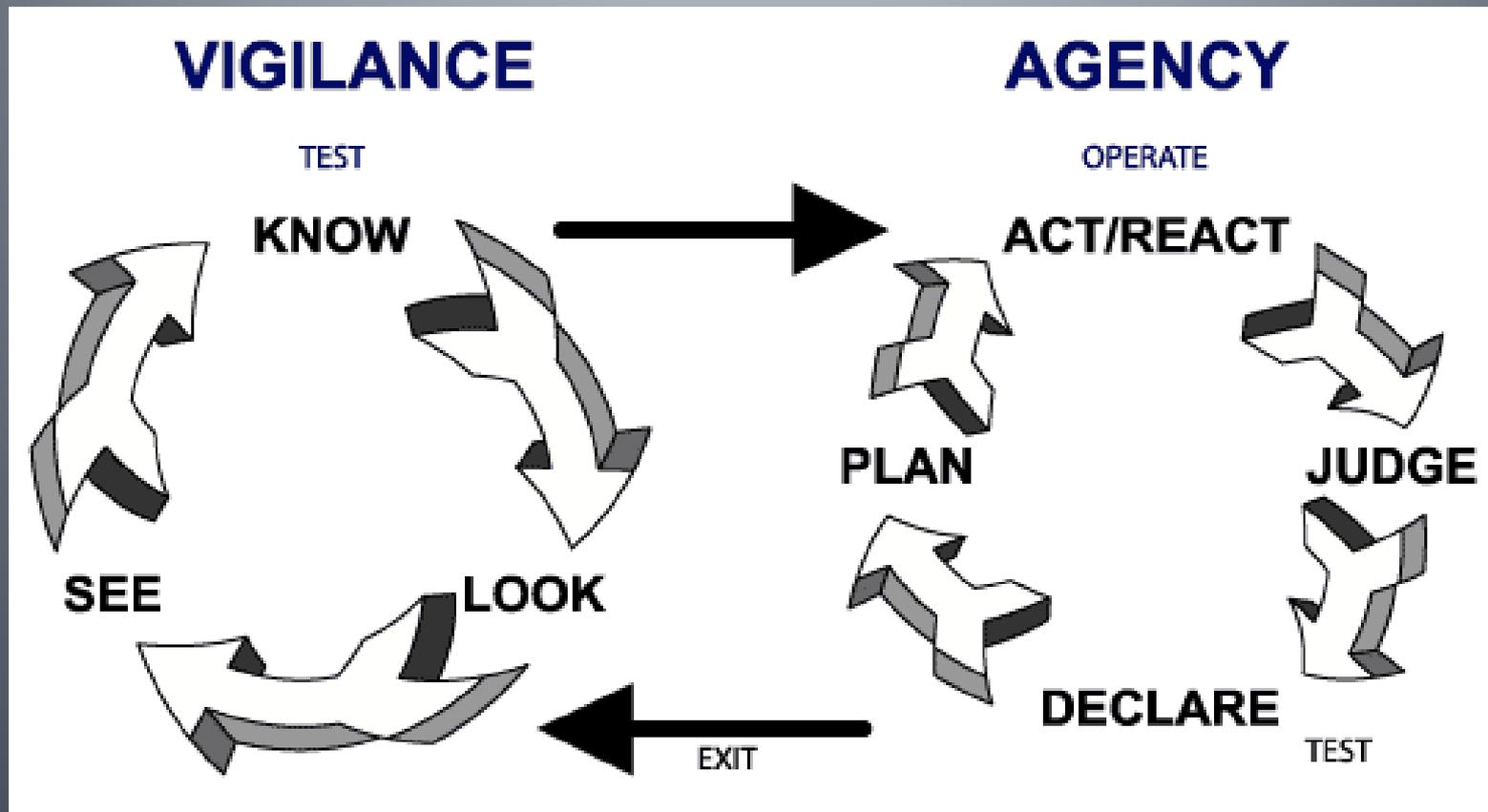


Design/Methods

- Students enrolled by school nurses (n = 176)
 - Checklist to identify children with persistent asthma
 - Three encounters at school
 - Forced expiratory volume in 1 second (FEV1)
 - Impairment—*Children's Health Survey for Asthma – Child Version*, American Academy of Pediatrics (CHSA-C)
 - Psychosocial well-being (CHSA-C)
 - Adequacy of ICS inhaler technique (IFR and IFT)
 - Identification of medication/inhaler (access and use)
 - ETS and other environmental factors (CARAT)
 - Self-care education by IMPACT Asthma Kids[©]



Self-Regulation Theory



Our intervention is based on "self-regulation theory."

PEDIATRICS Vol. 111 No. 3 March 2003, pp. 503-510

Internet-Enabled Interactive Multimedia Asthma Education Program: A Randomized Trial

Santosh Krishna, PhD^{*},

Benjamin D. Francisco, RN, MSN[†],

E. Andrew Balas, MD, PhD^{*}, Peter König, MD, PhD[‡],

Gavin R. Graff, MD[¶] and Richard W. Madsen, PhD^{||}

RCCT Design

- 228 children, 6 to 18 years
- A parent present
- Specialty care for all
- Caring for Kids info
- Three visits, 1 year
- Knowledge gain
- Self-report, Sx, Rx, days missed, ER, impairment

www.pediatrics.org/cgi/content/abstract/111/3/503

Community Healthcare for Asthma Management and Prevention of Symptoms (CHAMPS): Highly Tailored NIH Asthma Interventions



NCICAS: The National Cooperative Inner-City Asthma Study
Asthma counselor intervention



ICAS: Inner-City Asthma Study
Environmental intervention

HEAL: Head-off Environmental Asthma in New Orleans
Combined asthma counselor (NCICAS) and environmental (ICAS)
intervention in post-disaster New Orleans



Educator Assessment (ACE[©])

Using CARAT Environment Questions

	Yes	No
29. Does your child's pillow have a special cover for allergies?	<input type="radio"/>	<input type="radio"/>
30. Does your child's mattress have a special cover for allergies?	<input type="radio"/>	<input type="radio"/>
31. Do you use a humidifier/ vaporizer in your child's bedroom?	<input type="radio"/>	<input type="radio"/>
32. Do you have carpeting (or rugs) in your child's bedroom?	<input type="radio"/>	<input type="radio"/>
33. Do you have carpeting (or rugs) in your TV/family room?	<input type="radio"/>	<input type="radio"/>
34. Does your kitchen have a gas stove?	<input type="radio"/>	<input type="radio"/>
35. Do you sometimes use the gas stove to help heat your house?	<input type="radio"/>	<input type="radio"/>

36. Is there any moisture or mildew anywhere in the house on the . . .

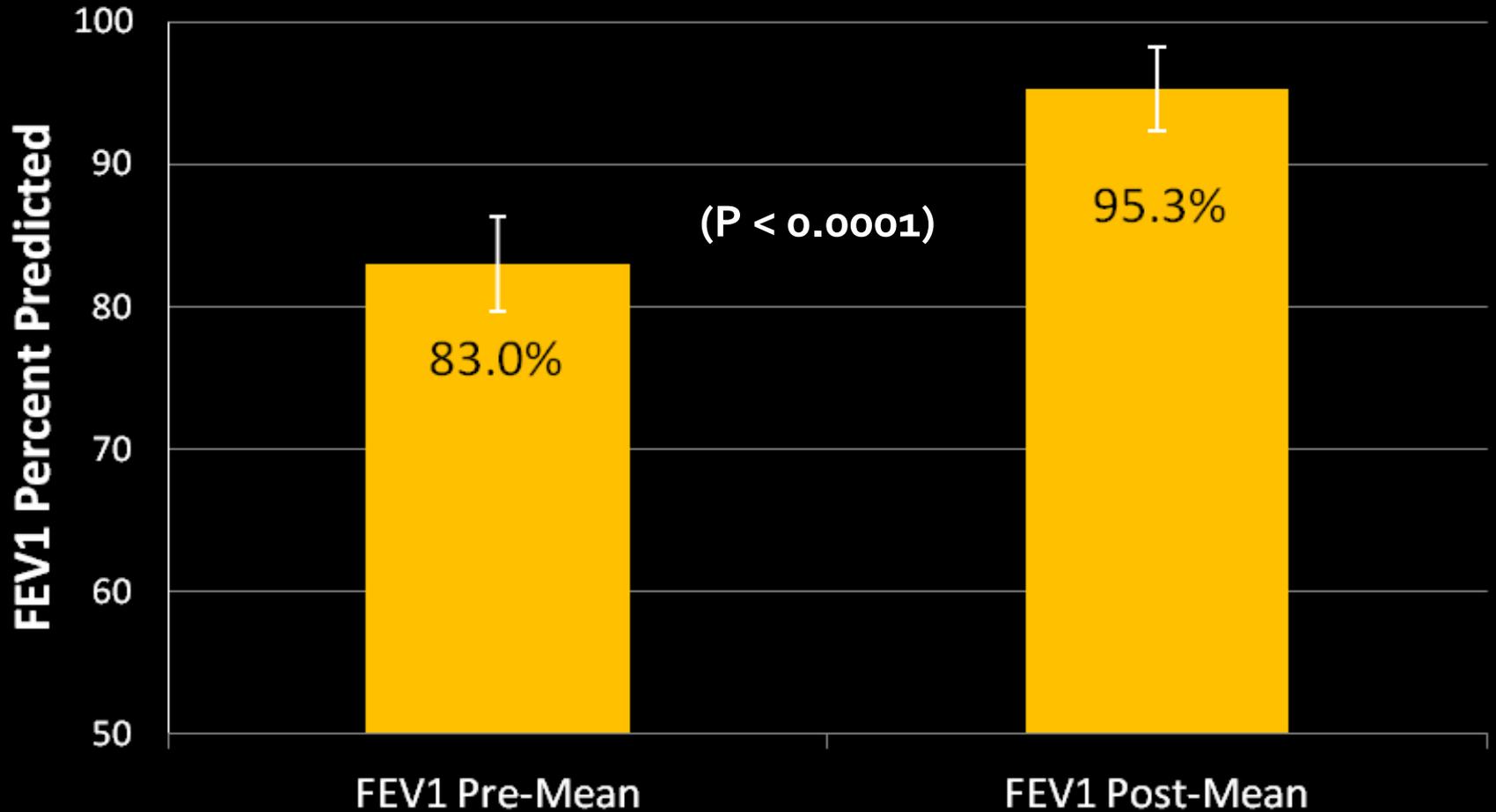
	Yes	No
Ceiling?	<input type="radio"/>	<input type="radio"/>
Walls?	<input type="radio"/>	<input type="radio"/>
Windows?	<input type="radio"/>	<input type="radio"/>

37. Have you had any problems with . . .

	Yes	No
Cockroaches?	<input type="radio"/>	<input type="radio"/>
Mice?	<input type="radio"/>	<input type="radio"/>
Rats?	<input type="radio"/>	<input type="radio"/>



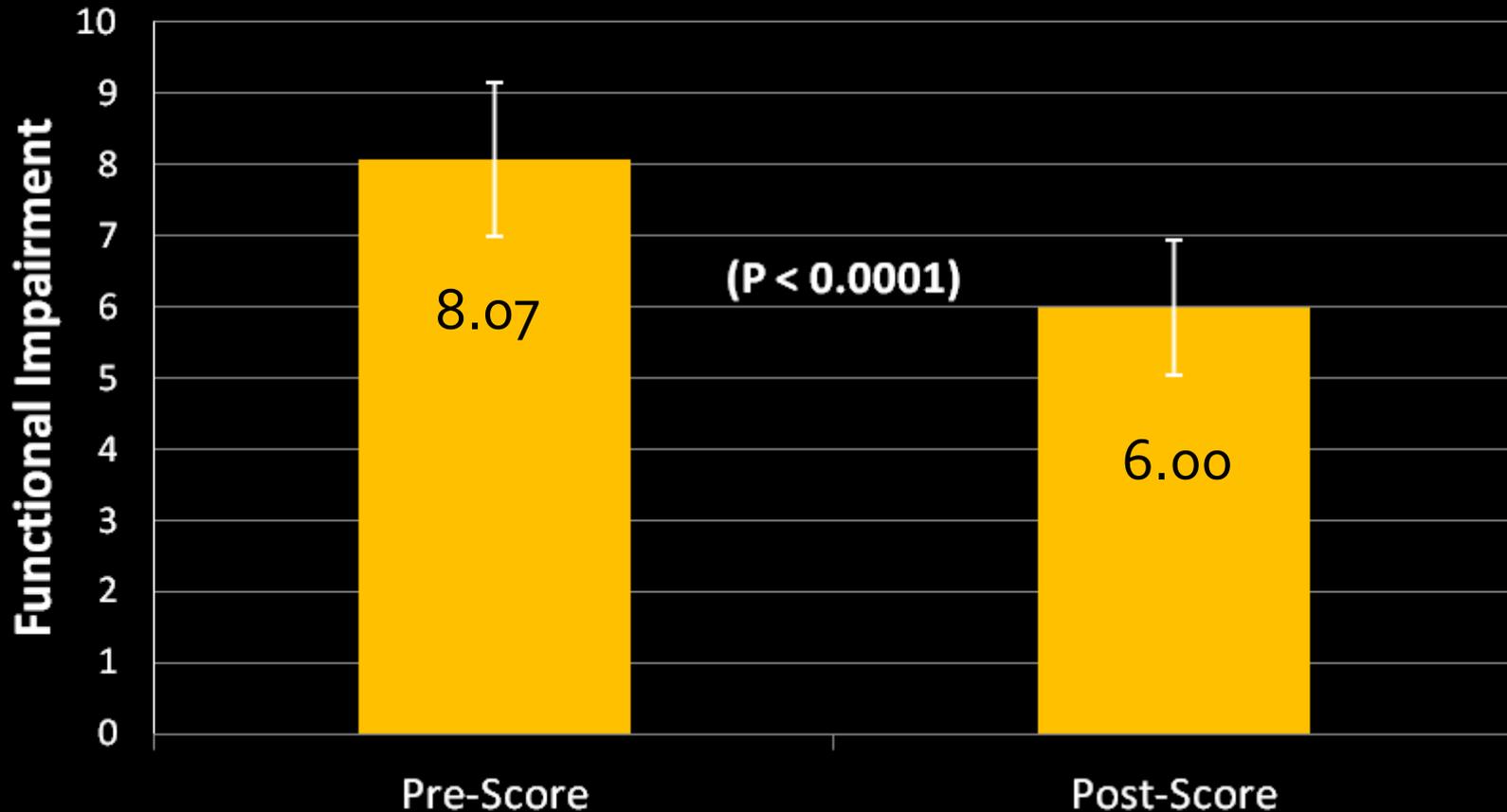
FEV1 Percent Predicted Pre and Post Intervention



Student-Reported Functional Impairment

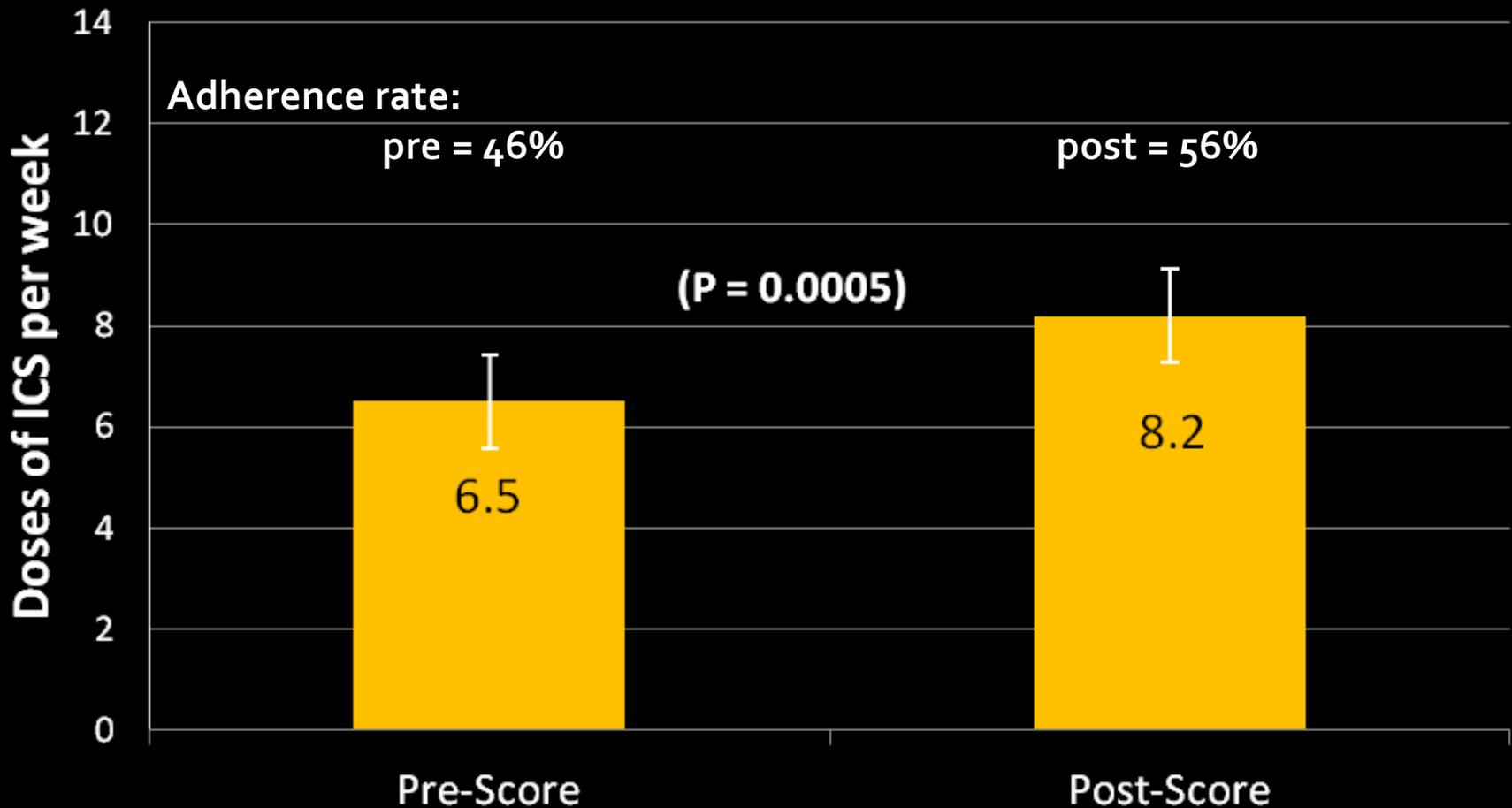
Children's Health Survey for Asthma – Child Version

American Academy of Pediatrics

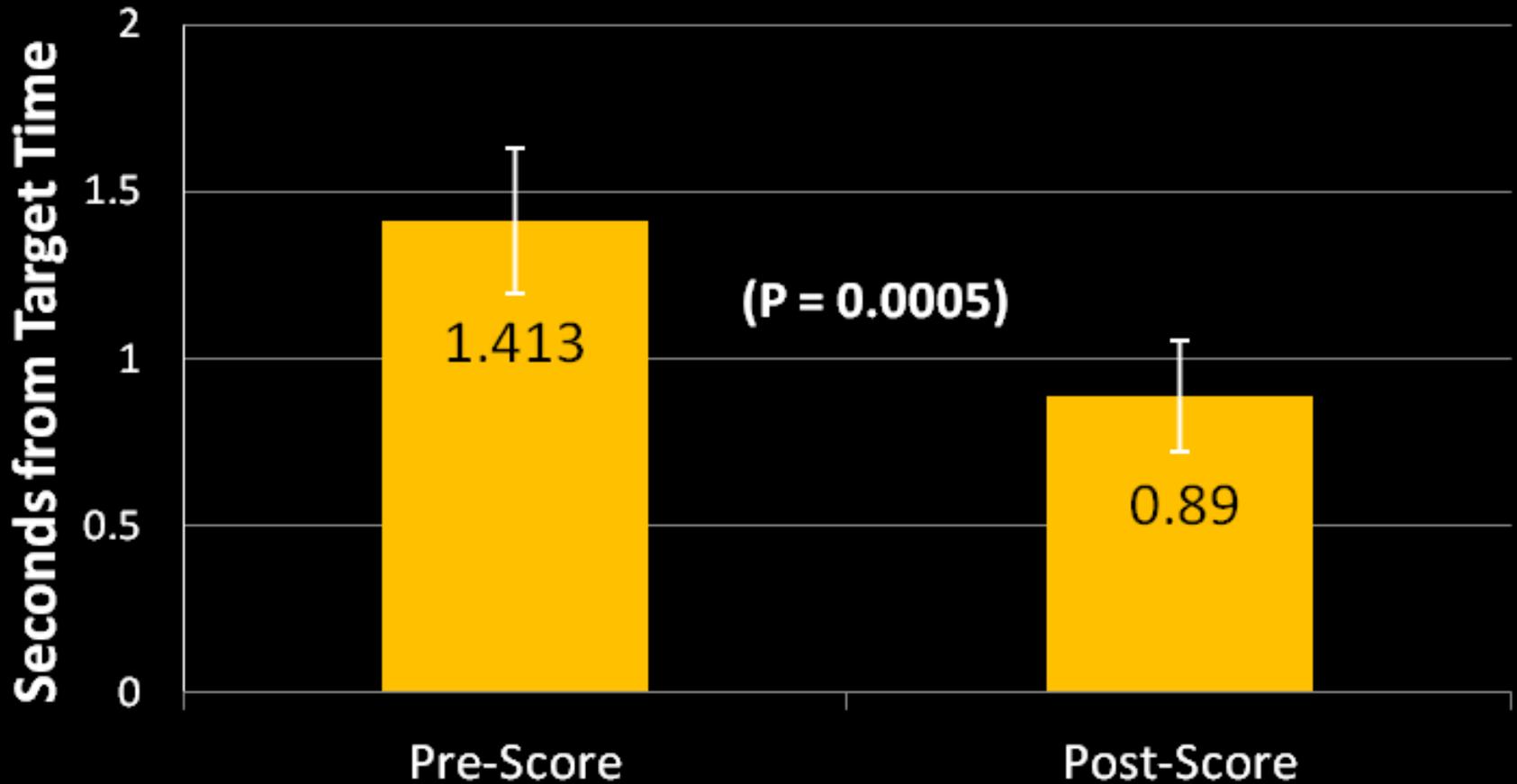


University of Missouri Health Care

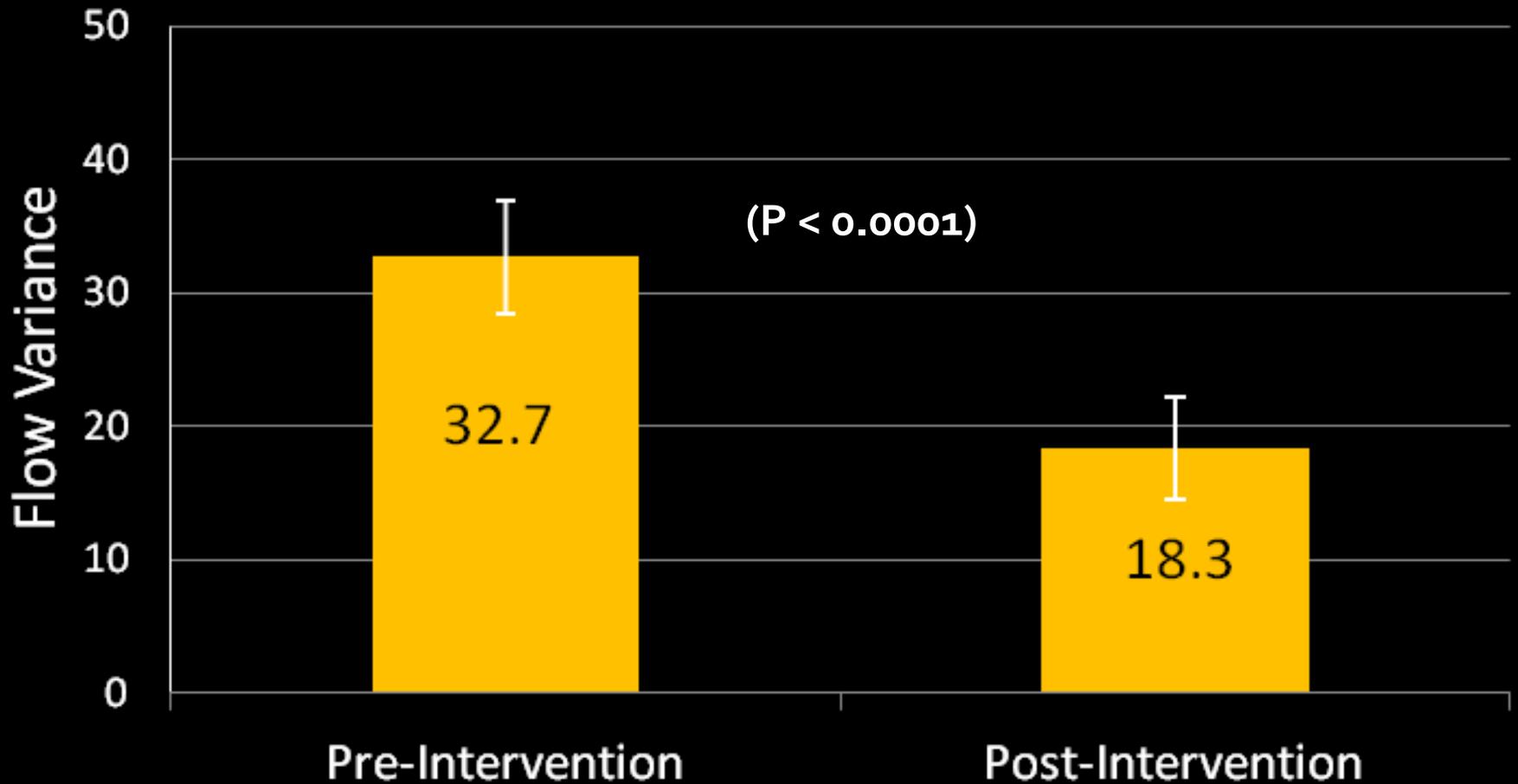
Inhaled Corticosteroid (ICS) Usage



Inhalation Effort



Variance in Inspiratory Flow Rates



Student Psychosocial Well-Being

- CHSA-C:
Child's feelings and beliefs:
 - Frustration
 - Isolation
 - Sadness
 - Anger
 - Embarrassment

**Attitude/Belief Score
significantly improved
($p < .0001$).**

Results

- Additional findings:
 - Student-reported smoke exposure scores decreased ($p < 0.0001$).
 - Participants liked the program:
 - 93% of parents would recommend to other families who have children with asthma.
 - 87% of participating nurses would recommend to other school nurses.



Results—ROI

- Cost analysis
 - Mean medical care costs rose by 11% annually between 2009 and 2014.
 - Average rate increase of \$350.20/year.
 - TUAC costs \$150 per student.
 - Delivery by school nurse (or RRT, AE-C, other)
 - TUAC student total mean medical care cost fell by >\$1,300
 - ***ROI 7:1 in Year 1, likely savings Years 2, 3...***

Asthma-Trained School Nurses Serving Students With Uncontrolled Asthma

- Identified at-risk students (guided judgement).
- Delivered 3 standardized “check-ups.”
- ICS adherence improved.
- Inhalation technique improved.
- FEV₁% predicted increased (83 to 95).
- Impairment decreased (AAP-CHSA-C).
- MC cost fell by 30% (>\$1300), ROI–7:1 .

Google: "Teaming Up for Asthma Control"

www.cdc.gov/pcd/issues/2017/17_0003.htm

[All A-Z Topics](#)

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CDC 24/7: Saving Lives, Protecting People™

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PCD ▾



Preventing Chronic Disease

CDC



PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

Teaming Up for Asthma Control: EPR-3 Compliant School Program in Missouri Is Effective and Cost-Efficient

ORIGINAL RESEARCH — Volume 14 — May 25, 2017

Benjamin Francisco, PhD, PNP-BC, AE-C¹; Tammy Rood, MSN, CPNP-PC, AE-C¹; Rebekah Nevel, MD²; Paul Foreman, PhD¹; Sherri Homan, RN, FNP, PhD³ ([View author affiliations](#))

Suggested citation for this article: Francisco B, Rood T, Nevel R, Foreman P, Homan S. Teaming Up for Asthma Control: EPR-3 Compliant School Program in Missouri Is Effective and Cost-Efficient. *Prev Chronic Dis* 2017;14:170003. DOI: <http://dx.doi.org/10.5888/pcd14.170003> 

PEER REVIEWED

Abstract

On This Page

Abstract

Describe an integrated model for assessing asthma status of individuals that utilizes clinical, claims, community services and self-report data.

Objective 2

**Medical
Home**

**Person With
Asthma**

**Community
Partners**



Could “community” interventions and assessments coupled with claims data improve asthma care and education?



Four Critical Data Sources

- 1) Patients
- 2) Clinicians
- 2) Administrative claims
- 3) Community interventions
 - a) Pharmacists
 - b) School nurses
 - c) Educators
 - d) In-home services



EPR₃ Guide to Stepping Therapy Up or Down

- Step up IF needed.
- FIRST, check **adherence**.
- THEN, check **inhaler technique**.
- AND, check **environmental control**.
- Step down IF asthma is well controlled for 3 months or longer.

Must base therapy step changes on assessment of adherence, inhalation technique and triggers.



Step up if needed

(first, check adherence, inhaler technique, and environmental control)

Assess control

Step down if possible

(and asthma is well controlled at least 3 months)



Successful Strategies & Promising Interventions

just do it.



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Successful Strategies & Promising Interventions

just do it.



Pharmacies

Pharmacy Code	Pharmacy Name
A	WALGREENS #05146
B	UNIVERSITY PHYSICIANS
C	WALGREENS #05145
D	WAL-MART PHARMACY 10-159
E	UMC HOSP/CLINICS PHARMACY
F	UMC GREEN MEADOWS PHARMACY
G	WALGREENS #10587
H	WAL-MART PHARMACY 10-451
I	UNIVERSITY OF MO-COLUMBIA

Successful Strategies & Promising Interventions

just do it.



Pharmacy Claims

Service Date	Drug Name	Quantity	Days Supply	Refill	Therapeutic Class	MPR % Description			
						MPR%	Alerts	Physician	Pharmacy
10/05/2011	FLUTICASONE PROP 50 MCG SPRAY	16	30	0	Eye, Ear, Nose & Throat Preparations	181%		C	A
10/05/2011	RANITIDINE 150 MG TABLET	60	30	0	Gastrointestinal Drugs	90%		C	A
10/05/2011	FLOVENT HFA 220 MCG INHALER	12	30	0	Hormones and Synthetic Substitutes	-	B	C	A
10/04/2011	IPRATROPIUM BR 0.02% SOLN	125	30	1	Autonomic Drugs	102%		A	A
10/04/2011	ADVAIR HFA 230-21 MCG INHALER	12	30	1	Hormones and Synthetic Substitutes	91%	B	C	A
09/28/2011	NAPROXEN 500 MG TABLET	60	30	0	Analgesics and Antipyretics	103%		A	A
09/24/2011	TRAZODONE 50 MG TABLET	30	30	1	Psychotherapeutic Agents	105%		O	A
09/22/2011	CEFUROXIME AXETIL 500 MG TAB	28	14	0	Antibiotics	-		C	A
09/20/2011	CEPHALEXIN 500 MG CAPSULE	30	10	0	Antibiotics	-		D	B
09/12/2011	CYCLOBENZAPRINE 5 MG TABLET	28	14	0	Autonomic Drugs	-	A	A	A
09/01/2011	IPRATROPIUM BR 0.02% SOLN	125	30	1	Autonomic Drugs	-		A	A

Medication-Related Problems (MRPs)

Examples of MRPs include—

- 1) Low rate of ICS refills
- 2) >3 albuterol dispensed in 6 months
- 3) No spirometry in 3 years
- 4) Recent ER visit for asthma
- 5) >1 oral steroid burst in 12 months

mediasuite.multicastmedia.com/player.php?v=al8oy67g



Summarize a population-based approach for enhancing asthma outcomes and lowering costs.

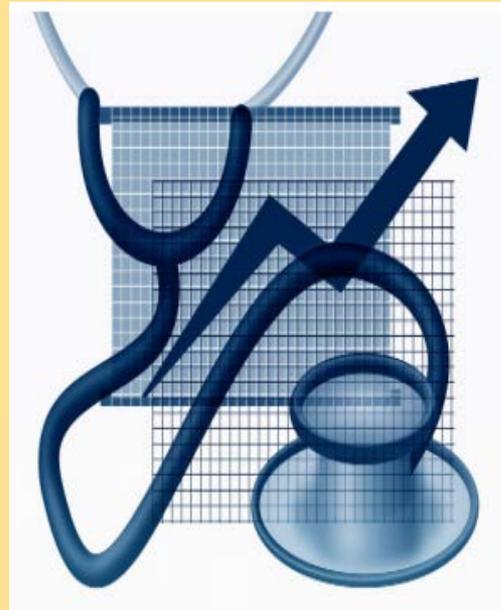
Objective 3



Understanding Medicaid Claims and Encounter Data and Their Use in Payment Reform

Jennifer Reck and Rachel Yalowich

- Traditional fee-for-service payment arrangements incent high volume care while payment reform can incent high value care and achieve cost savings.
- States may work with external contractors for data management and analytics related to payment reform.
- Claims data can be used to identify high-need, high-cost patients for care coordination; and measuring, supporting, and rewarding provider performance.



"Transforming the way states pay Medicaid providers through value-based incentives holds tremendous opportunity to both slow the growth of spending and improve patient care."

Reducing the Burden of Childhood Asthma Through Physician Engagement for Maintenance of Certification (MOC)

- 55,000 children with asthma are enrolled in Missouri Medicaid; 20% have uncontrolled asthma.
- There is low provider adoption of best practices.
- Preliminary findings in 2018 showed seven providers who adopted best practices after participating in a video-conferencing (ECHO[®]) program for MOC reduced asthma burden for their panel of patients.
- A second provider cohort will participate in 2019. An implementation science, learning health system approach will be used to refine this strategy.

Favorable Policy Changes in Missouri Impacting Asthma Care and Education

- MC Reimbursement 99605 Medication Therapy Management (2009)
- House Bill 1188 Life-Threatening Asthma (2012)
- Missouri Revised Statute Funds ECHO[®] (2015)
- Medicaid SPA*–Childhood Asthma HH* (2016)
- MC SPA–Preventive Asthma Services (2016)
- Senate Bill 579–Telemedicine in Schools (2016)

*HH = sole qualifying condition for patient center health home

*SPA = state plan amendment approved by Centers for Medicare and Medicaid Services



Array of Clinical and Preventive Services*

ServiceType	EligibleGroup	ServiceCost
1) Asthma literacy*	Everyone with asthma	Low, \$9441*
2) Key messages	Everyone with asthma	Bundled w/OP visit
3) Inhalation instruction	Everyone with asthma	Low, \$94664
4) PMC, risk reduction	Not well controlled	Moderate, \$9401,2
5) Medication Therapy Management*	Claims alerts at point of dispensing Rx	Moderate, \$9605,6,7
6) Self-management*	Very poorly controlled	Moderate, \$98960,1,2*
7) Home trigger reduction*	VPC, high ACD, good ICS adherence and IHT	Moderate, \$9441-SC*
8) Coach/counselor*	VPC, VH\$, refractory	High, Health Home

Promoting Asthma Best Practices— The Asthma Care Accelerator[®]

- Learning Health System framework
- ECHO[®] platform to connect >1,200 health care providers and health agency staff
- Provides CE, CME, Advanced Pharmacology credit and MOC, Part 2 and Part 4
- Uses local run charts over 6 months to document implementation of best practices
- Compares claims data for the year before and the year of participation

How Do We Implement Best Asthma Practices?

- Learning together (ECHO[®])
- Academic detailing (supplies, routines)
- Performance feedback (claims data)
- Practice facilitation (seeing patients)

Implementing Asthma Guidelines Using Practice Facilitation and Local Learning Collaboratives: A Randomized Controlled Trial

www.ncbi.nlm.nih.gov/pmc/articles/PMC4018371/

Model for Asthma Practice Facilitation

Find out how one practice has improved care and outcomes for its asthma patients and increased practice revenue at the same time.

Kurtis S. Elward, MD, MPH, FAAFP



Asthma Days

Implementing Asthma Best Practices

fs2.formsite.com/openform/form30/index.html

My Action Steps for Improving Asthma Care Asthma Ready® Clinics

Please select two (2) of the following items as your “high priority actions” for the next 100 days. Mark your choices with a check. As part of our training follow-up and evaluation, our team will be contacting you a few times to ask about progress. Your responses are vital to our efforts to provide high quality training that is responsive to the needs of health care teams dedicated to high quality asthma care.

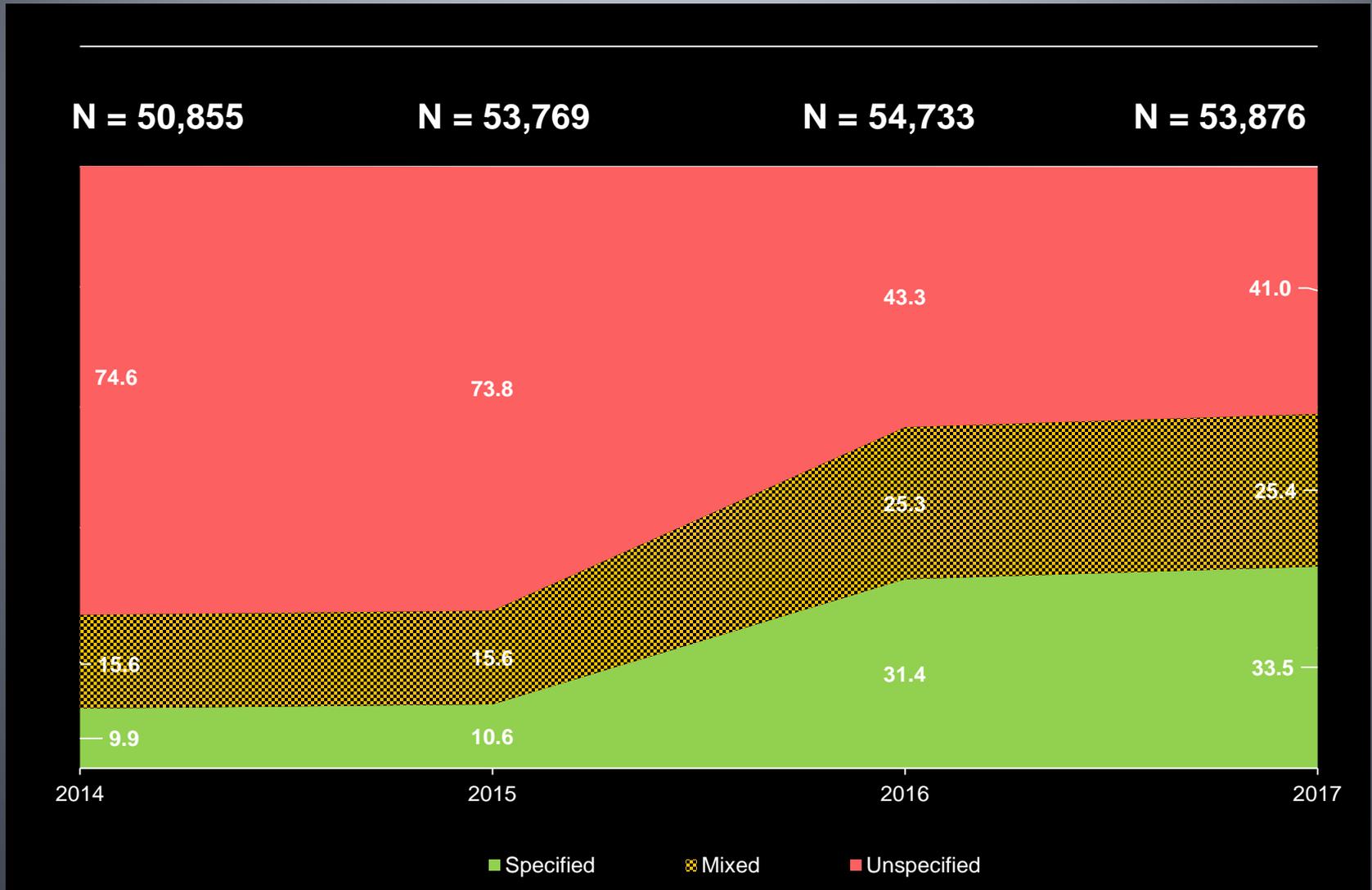
High Quality Medical Care



here

1. Assess Severity Initial Visit. Assess and document asthma severity at initial visit and update severity when well controlled based on lowest therapy step required (intermittent or mild, moderate or severe persistent)	
2. Assess Asthma Control Always. Assess and document asthma control at every visit (well controlled, not well controlled, or very poorly controlled)	
3. FEV1. Assess, interpret and document FEV1 for all patients age 5 and older at each visit	
4. Spirometry. Order and evaluate spirometry every 1-2 years for all patients 6 years and older (FVC, FEV1, and FEF25-75), determine lung growth pattern and evidence for lung function impairment	
5. Inhalation Technique. Assess adequacy of inhalation technique for ICS and LABA inhalers (MDI and DPI, if using). Document inspiratory flow rate and time before and after coaching.	

Use of Specified Asthma Diagnoses—2014 to 2017 (Missouri Medicaid)



www.ahrq.gov/learning-health-systems/index.html

U.S. Department of Health & Human Services

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Learning Health Systems



Supporting Learning Health Systems
Initiatives that help learning health systems learn

Building the Workforce
Establishing competencies and training for learning health systems

Exploring Learning Health Systems' Needs
AHRQ's Summit explored what health systems need to become learning health systems

THE TRANSFORMATIVE MODEL IN MEDICAL EDUCATION AND CARE DELIVERY

www.youtube.com/watch?v=VAMaHP-tEwk



Project ECHO® (Extension for Community Healthcare Outcomes) helps democratize medical knowledge and develops specialty care capacity in underserved communities.

Using a revolutionary model of telementoring, collaborative medical education and care management, Project ECHO empowers front-line primary care professionals to provide the right care, in the right place, at the right time.



Part of the Team



Leroy Graham, MD, FCCP
Pediatric Pulmonologist
Founder - "Not One More Life"



Deb Cook RN, AE-C
*School Nurse Manager,
President, Missouri Association
of School Nurses (2018-2019)*
Kennett Public Schools



Paul Miles, MD
*Former Senior VP
MOC and Quality*
American Board of Pediatrics



Claudia Preuschoff, MD, FAAP
Missouri Asthma Champion
American Academy of Pediatrics



Shelley Cooper, Ed.D, MAT, BSBA
Diversity Telehealth, LLC
Kansas City, MO



Michelle Dickens, RN, FNP-C, AE-C
Coordinator, Cox Asthma Clinic
Allergy Clinician, Ferrel-Duncan Clinic



John Spivey, MD
Pediatric Pulmonologist
Mercy Hospital St. Louis



Bernie Eskridge, MD
Pediatrician
Asthma Champion (NEEF)
MU Health Care



Tammy Rood, DNP, PNP, AE-C
Lead Trainer
Missouri School Asthma Service



Ben Francisco, PhD, PNP, AE-C
Population Health Strategist
MU Health Care

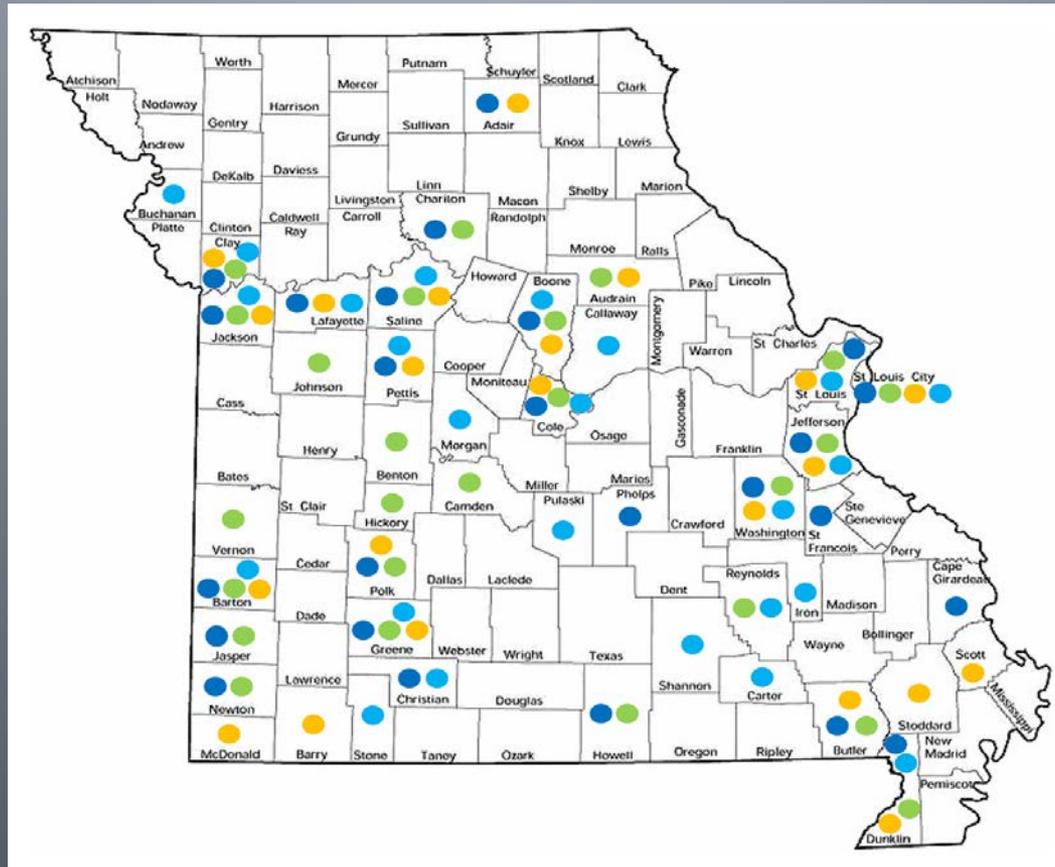


Paul Foreman, PhD, MS, MA
Social Scientist Claims Expert
MU Health Care



Sherri Homan, FNP, PhD
Public Health Epidemiologist
Missouri Asthma Prevention
and Control Program

Asthma ECHO® Participants 2015–2019

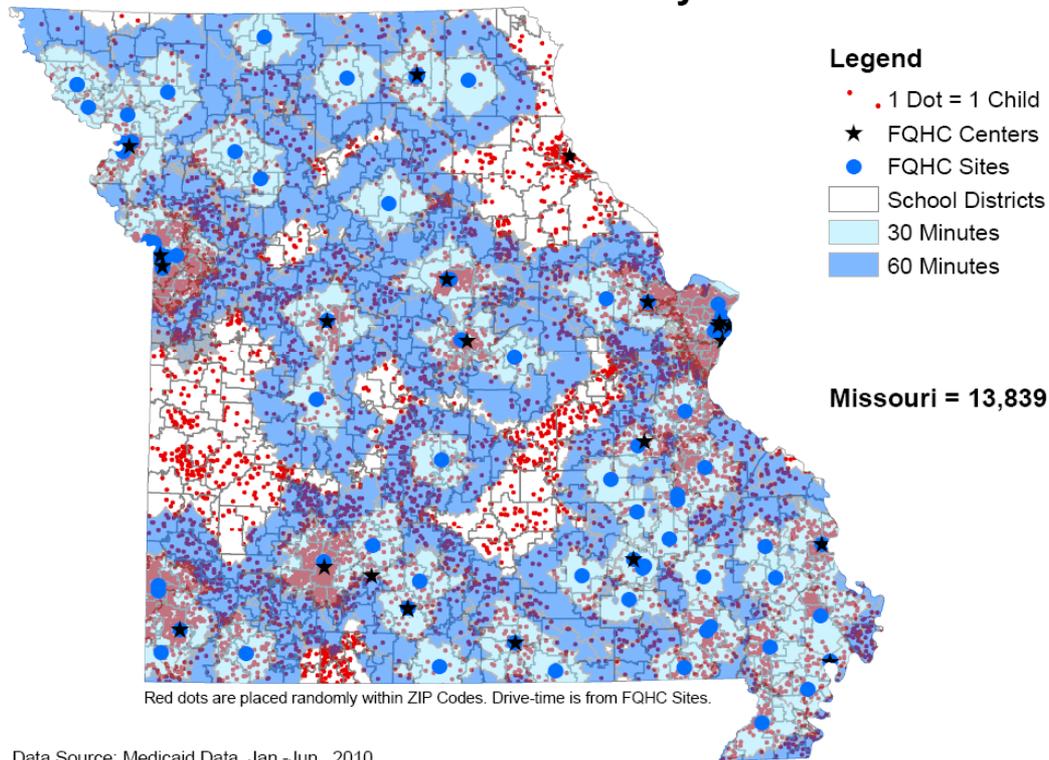


Population-Based Approach

- ZIP-code level asthma surveillance
- Workforce development—current health professionals not prepared or equipped
- Robust claims analysis to promote best practices and stratify asthma interventions
 - Drug utilization reviews, provider messaging
 - Messaging families of at-risk children
- Standardized assessments and interventions
- Asthma Control Data Monitor[©]

Geo-Mapping by FQHC

Medicaid Children with HEDIS Most Restrictive Asthma by ZIP Code, 2010 with School District Boundaries and Drive-Time Analysis

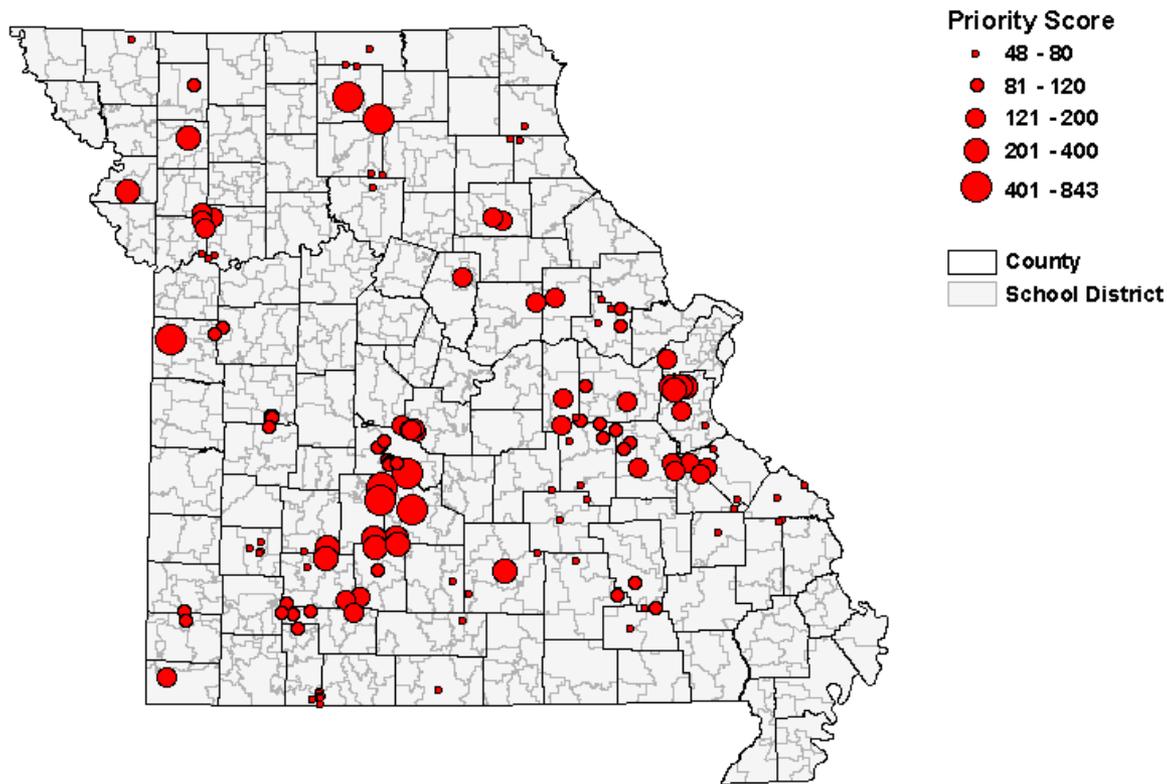


Red dots are placed randomly within ZIP Codes. Drive-time is from FQHC Sites.

Data Source: Medicaid Data, Jan.-Jun., 2010
Map Prepared By: University of Missouri Extension, Office of Social and Economic Data Analysis (OSED)A
Map Generated On: 09 Jun 2011

Top 50 Rural School Districts

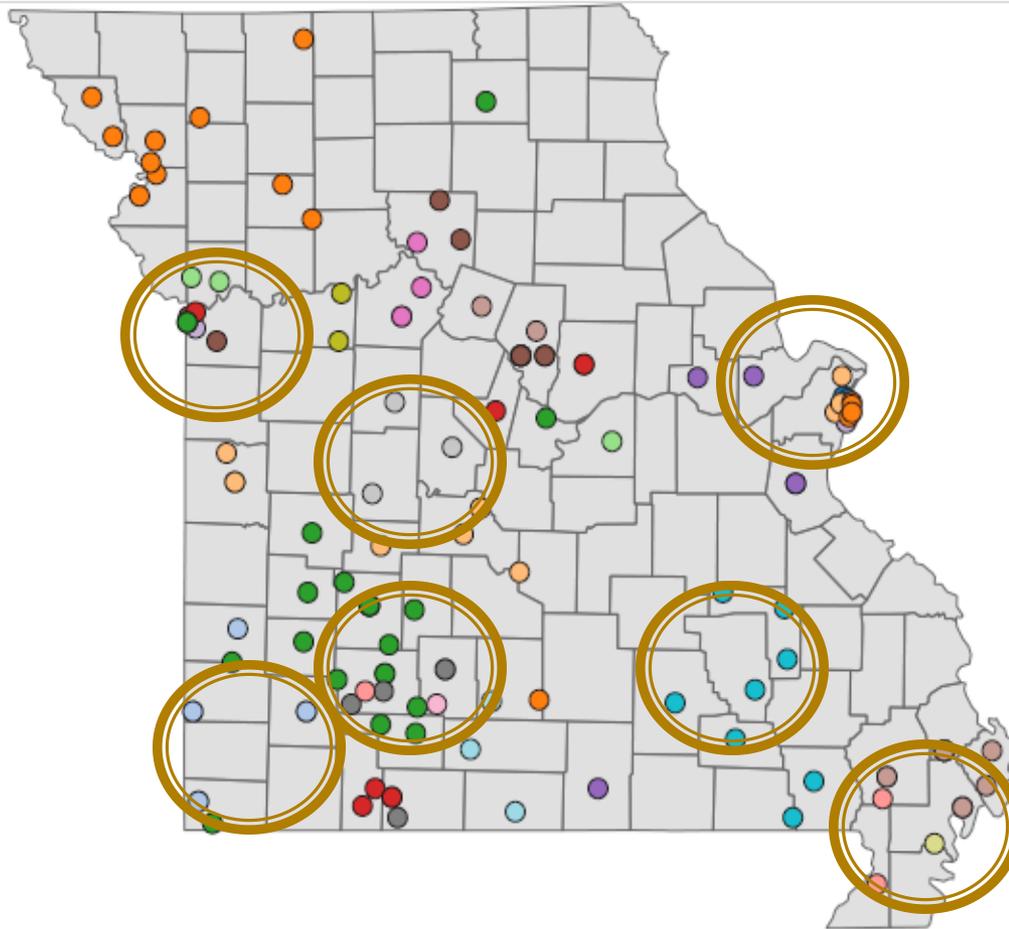
Disabling Asthma Priority Scores Among Missouri Schools (K-12)
50 Highest Rural ZIP Codes, May 2005



Source: Francisco, B. and Konig, P., 2005. School Nurse Survey of Disabling Asthma in Missouri, Unpublished Data, University of Missouri, Columbia.

MHD Primary Care Health Home Locations

August 2016



- PCHH**
- Access Family Care
 - Affinia Healthcare
 - Bales County Memorial Hospital
 - Central Ozarks Medical Center
 - Children's Mercy Hospital
 - Citizens Memorial Healthcare
 - Community Health Center of Central Missouri
 - Community Health Center of Central MO
 - COMTREA Community Health
 - Cox Branson
 - Cox Springfield
 - Crider/Compass
 - Family Care Health Centers
 - Family Health Center of Boone County
 - Ferguson Medical Group
 - Fitzgibbon Hospital
 - Fordland Clinic
 - Jordan Valley Community Health Center
 - Katy Trail Community Health
 - Live Well Community Health Center
 - Missouri Delta Medical Center
 - Missouri Highlands Health Care
 - Missouri Ozarks Community Health
 - Missouri Ozarks Community Health*
 - Myrtle H. Davis Comprehensive Health Ctrs
 - Northeast Missouri Health Council
 - Northwest Health Services
 - Ozarks Community Health Center
 - Ozarks Community Hospital
 - Priority Care Pediatrics, LLC
 - Samuel U. Rodgers Health Center
 - Southeast Missouri Health Network
 - Southern MO Community Health Center
 - SSM Cardinal Glennon Children's Hospital
 - Swope Health Services
 - Truman Medical Centers
 - University of Missouri Health System



Community Asthma Care & Education Hubs

High Impact – Low Cost

Plan and Implement Best Practices



Low-Cost, High-Impact Actions

■ Clinical

- 94664 inhalation instructions, standardized assessments, each knows “target time”
- Interventions to promote ICS adherence, gift card incentive, 2-month “Star Chart”
- Use of hypertonic saline for self-care, nasal rinse or mist
- Trigger identification, avoidance, indoor air quality (NEEF clinical history, EPA Home Survey, CARAT)

Asthma Control Data Monitor[©]

ASTHMA CONTROL DASHBOARD			
Indicator/Measure	Well Controlled	Not Well Controlled	Very Poorly Controlled
Inhaled Corticosteroid (ICS)	Low/Med	High	Sub-therapeutic
Inhalation Technique (IT)	Good	Inadequate	Poor
Short-Acting Beta Agonist (SABA)	< 3 / week	> 3 / week	High doses
FEV ₁	> 80% of personal best Or % predicted	60 – 80%	< 60%
Impairment Score	None	Some	Lots
Oral Steroid Burst (OSB)	0 – 1 / year	2 – 3 / year	> 3 / year
Acute Care Days (ACD)	0 - 1	2 - 6	> 6
Cost (Total Care)	< 120	120 – 200%	> 200%
<p>Summary: This child demonstrates very poorly controlled asthma with possession of sub-therapeutic amounts of ICS, more than 3 oral steroid bursts, more than 6 days of acute care for asthma and very high cost of care.</p> <p>Recommendation: Additional clinical encounters, 98960 (ACE) and home trigger reduction are indicated.</p>			
CONTRIBUTING FACTORS			
Identified co-morbid conditions: chronic rhinitis (472.0), allergic rhinitis (477.9), gastroesophageal reflux (530.81), sinusitis (461.9, 473.9, 473.0, 473.2), overweight (278.02), obesity (278.00), OSA (327.23)			
ENVIRONMENTAL ASSESSMENT STATUS			
None	Indicated	At Risk, Engaged	Remediated, Inactive
	CARAT score: 14 Please schedule now	Date of last assessment	Last visit date
		___ / ___ / ___	___ / ___ / ___

Asthma Control Dashboard

appdev.cares.missouri.edu/cgi-bin/ARC/ACM.py

(Patient 1)

	Indicator / Measure	Well Controlled	Not Well Controlled	Very Poorly Controlled
Past 90 days	Inhaled Corticosteroid	Low / Med	High	Sub-therapeutic
	Inhalation Technique	Good	Inadequate	Poor
	SABA	< 3 / week	> 3 / week	High doses
	FEV ₁	> 80% of personal best Or % Predicted	60% - 80%	< 60%
	Impairment Score	None	Some	Lots
	Past 3 years	Oral Steroid Burst	0 - 1 / year	2 - 3 / year
Acute Care Days		0 - 1 day	2 - 6 days	> 6 days
Cost		< 120%	120% - 200%	> 200%

Summary: This child demonstrates very poorly controlled asthma with possession of sub-therapeutic amounts of ICS, more than 3 oral steroid bursts, more than 6 days of acute care for asthma and very high cost of care. **Recommendation:** Additional clinical encounters, 98960 (ACE) and home trigger reduction.

Environmental Interventions

The Guide to Community Preventive Services
THE COMMUNITY GUIDE
What Works to Promote Health

Community Preventive Services Task Force
 Community Guide CDC.gov

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Home » Topics » Asthma » Asthma Control: Home-Based Multi-Trigger, Multicomponent Environmental Interventions

Text Size: [S](#) [M](#) [L](#) [XL](#)

Asthma

Home-Based Multi-Trigger, Multicomponent Interventions

[Supporting Materials](#)

[Publications](#)

Asthma Control: Home-Based Multi-Trigger, Multicomponent Environmental Interventions

Home-based multi-trigger, multicomponent interventions with an environmental focus for persons with asthma aim to reduce exposure to multiple indoor asthma triggers (allergens and irritants). These interventions involve home visits by trained personnel to conduct two or more activities. The programs in this review conducted environmental activities that included:

- Assessment of the home environment
- Changing the indoor home environment to reduce exposure to asthma triggers
- Education about the home environment

Most programs also included one or more of the following additional non- environmental activities

- Training and education to improve asthma self-management
- General asthma education
- Social services and support
- Coordinated care for the asthma client

Summary of Task Force Recommendations & Findings

The [Community Preventive Services Task Force](#) recommends the use of home-based multi-trigger, multicomponent interventions with an environmental focus for children and adolescents with asthma based on evidence of effectiveness in improving overall quality of life and productivity, specifically:

- Improving asthma symptoms
- Reducing the number of school days missed due to asthma

The [Task Force](#) finds [insufficient evidence](#) to determine the effectiveness of home-based multi-trigger, multicomponent interventions with an environmental focus for adults with asthma based on the small number of studies identified and the mixed results across the outcomes of interest.

[Task Force Finding & Rationale Statement for review of interventions for children and adolescents](#)

Get Email Updates

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112
People have Asthma
VitalSigns
www.cdc.gov/vitalsigns

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Clinical Provider Asthma Panel Report

MY ASTHMA DASHBOARD

Print This Report

Data range 12/1/2017 and 11/30/2018

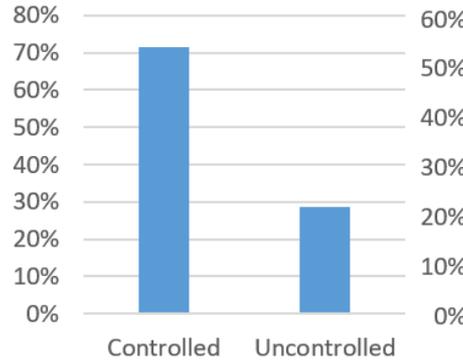
WHO ARE MY ASTHMA PATIENTS?

Ages

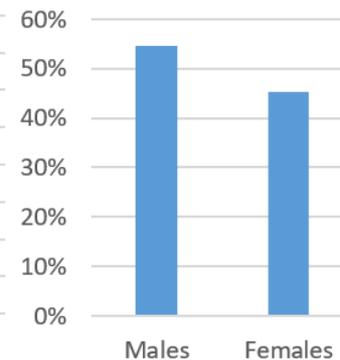
Under 18	162
18 & Over	10
Total Pts w/Asthma	172

Patients at risk for exacerbation per
MIPS 398 (2 or more ACD's): 10

Asthma Control

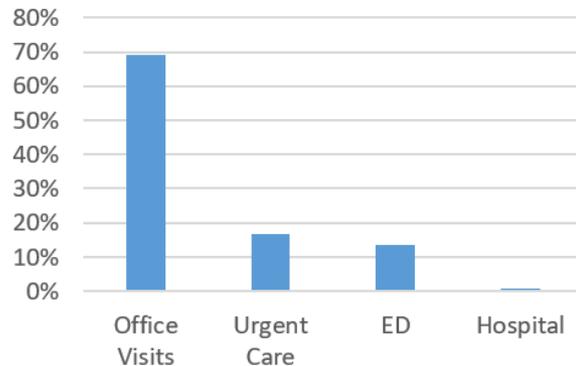


Gender



WHERE ARE THEY GETTING CARE?

Location of Care



POPte Score =

69%

Proportion of
Outpatient +
Preventive Visits to
Total
Encounters

0% means all asthma care is taking place in the emergency room or hospital. 100% is a perfect score, where all asthma care is provided with outpatient or preventive encounters.

Clinical Provider Asthma Panel Report

WHAT MEDICATIONS ARE THEY TAKING?

ICS	Percentage of all asthma patients who filled at least 1 ICS	50%
	Mean possession rate for patients who filled at least 1 ICS	31%
	Mean possession rate for patients w/uncontrolled asthma	27%
	Mean possession rate for all patients	15%
OCS	Total oral steroid bursts filled for all patients	85
	Average OCS bursts per patient	52%
	Number of patients with at least 2 OCS bursts	20

WHAT OPPORTUNITIES FOR CARE AM I MISSING?

Missed office visits based on 2 visits/yr for all patients	69
Missed office visits based on 2/yr for controlled & 4/yr for uncontrolled	167
Based on control, number of patient needing return visits in:	
	30-60 days: 9
	60-90 days: 6
	90-120 days: 156
Missed opportunity to bill 94664 inhaler training for each patient just once a year	159

WHAT OTHER SERVICES CAN I OFFER?

Number of patients who are eligible for Health Home Enrollment	62
Number of patients who are eligible for a Home Environmental Assessment	13

\$umming Up



- Better care (EPR₃-compliant)
- Better outcomes for our patients
- Greater professional satisfaction
- Increased clinical revenue
- Lower insurer costs
- Lower total health care costs

www.asthmaready.org

[Home](#) [Contact Us](#)



Questions?

Info@AsthmaReady.org

Phone  + 573.884.8629 

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Asthma Ready Communities



Asthma Ready® Communities (ARC) is an overarching endeavor to provide standardized, evidence-based educational programs for children with asthma, families and health professionals. These programs enhance the readiness of health care professionals and facilities to provide cost-efficient care that is compliant with the Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 3. For parents and caregivers, these programs provide comprehensive steps to improve asthma control in infants and children. For facilities, Asthma Ready® is a designation indicating that the facility has participated in asthma training, has the resources and is committed to delivering appropriate services, maintaining communication standards, and conducting quality improvement efforts to ensure best practices for the care of children with asthma. Asthma Ready® is a registered federal trademark owned by the University of Missouri.

The ARC team is located in the division of Pulmonary Medicine & Allergy, Department of Child Health, University of Missouri (MU), School of Medicine. Dr. Francisco and the clinical staff are members of University Physicians practice group, providing specialty care at

MU Women's and Children Hospital, Pediatric Specialty Clinic. Other staff represents disciplines ranging from social health science to epidemiology. The central office is located in Columbia, MO 65212

Contact Us

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FAX 573.882.6126



ASTHMABRIDGE

connecting kids with asthma
to environment and education services

a catalyst for change



Missouri Foundation
for Health™

Asthma
Ready.org



Health Care Foundation
OF GREATER KANSAS CITY



Centers for Disease
Control and Prevention
CDC 24/7: Saving Lives. Protecting People™



KCQIC
Kansas City Quality
Improvement Consortium



MoHealth Net

Thank you!

Polling Question 3

Based on what you heard from our speakers, what will you do next to use data to improve asthma control?

1. Work within my program to better collect and analyze data.
2. Work with partners in my community to gain access to other asthma data (e.g. hospitals, payers, schools, etc.).
3. Learn more about data by accessing resources on [AsthmaCommunityNetwork.org](https://www.AsthmaCommunityNetwork.org).
4. Other

Question & Answer Session on AsthmaCommunityNetwork.org Discussion Forum



**Immediately after the webinar, join us in the [AsthmaCommunityNetwork.org Discussion Forum](#) for a live online Q&A Session:
4:00 p.m. – 4:30 p.m. EDT**

To post a question in the [Discussion Forum](#), follow these directions:

1. If you are a Network member, log in to your [AsthmaCommunityNetwork.org](#) account.

Not a member? Create an account at [AsthmaCommunityNetwork.org](#) by clicking the “[Join Now](#)” link at the left side of the page. Your account will be approved momentarily, and you can begin posting questions.

2. Click on the “[Discussion Forum](#)” button on the home page.
3. Click on the “[Live Online Q&A for 7/30/19 Webinar](#)” link.
4. Click on the “[Add New Forum Topic](#)” link to post your question.
5. Enter your question and click the “[Save](#)” button at the bottom of the page.