Recommendations for Evaluation Metrics for Asthma Home Visiting Programs
Measuring Environmental Management & Health Outcomes

September 4, 2019 1:00-2:00 PM EST
Ruth Ann Norton, Michael McKnight, Brendan Brown, Kiersten Sweeney and Elsie Andreyev.
Webinar Logistics

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Introductions
The GHHI EMHOME Team

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Green & Healthy Homes Initiative
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Co-author, Editor

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Environmental Health Intern
Co-author
Innovation Portfolio

20 projects working to develop health care financing to support healthy homes

Innovative Healthcare Financing Partners

- Allegheny County - UPMC and Allegheny Co. Health Department
- Baltimore - Priority Partners MCO
- Buffalo - Oishei Children’s Hospital and IHA MCO
- Chattanooga - green spaces and Erlanger Children’s hospital
- Chicago - Presence Health, Elevate Energy, & NextLevel MCO
- Cincinnati - People Working Cooperatively
- Contra Costa Health Services
- Connecticut Medicaid and CT Greenbank
- Grand Rapids - Priority Health MCO, Healthy Homes Coalition of West Michigan, HealthNet of West Michigan
- Houston - UnitedHealthcare & Baylor; Community Health Choice MCO
- Indiana - 2018: Indiana Joint Asthma Coalition 2019: Memorial Hospital South Bend
- Iowa – Healthy Homes Des Moines
- Marin - Contra Costa Health Services & MCE
- Memphis - Le Bonheur Children’s Hospital & UnitedHealthcare, Amerigroup, and BlueCare
- Minneapolis - MN Energy Efficiency For All
- New York City - Affinity Health Plan, AlRnyc, & AEA; LISC; Medicaid and NYSERDA
- Oregon - Community Services Consortium
- Philadelphia - National Nursing Care Consortium
- Richmond City Health District
- Rhode Island - State Medicaid and Integra Accountable Entity
- San Antonio - SA Asthma Collaborative
- Salt Lake - University of Utah Health Plans and Salt Lake County
- Springfield - Health New England MCO, Baystate Health, Public Health Institute of Western Mass
- Worcester - UMass Memorial Hospital
In each of the sites, we are working towards building an evidence-based, in-home comprehensive asthma intervention to improve patient experience of care, improve health outcomes and reduce healthcare utilization costs.

Based on independent systematic reviews of scientific literature, CDC’s Community Preventative Task Force and NIH’s Expert Panel recommend home-based interventions for patient care and remediation of environmental triggers.

Clinical care
Patients receive the existing standard of care for asthma, including medications and assessment & monitoring

Education
Patients receive education on how to self-manage their specific environmental triggers in context.

Environment
The causes and triggers of asthma in the home are addressed to ensure immediate improvement.

Comprehensive asthma intervention example

Purpose of Recommending a Set of Standardized Evaluation Metrics for Asthma Home Visiting Programs:

1. Build Credible Evidence
2. Support Reimbursement
3. Comparability of Results
# Introductions

## EMHOME Work Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne Kelsey Lamb</td>
<td>Director</td>
<td>Regional Asthma Management and Prevention</td>
</tr>
<tr>
<td>Christina Underhill</td>
<td>Program Evaluation Manager</td>
<td>Le Bonheur</td>
</tr>
<tr>
<td>Edward Thomas</td>
<td>Region 3 Field Representative</td>
<td>HUD Healthy Homes</td>
</tr>
<tr>
<td>Erica Marshall</td>
<td>Director of the Asthma Prevention and Control Program</td>
<td>Massachusetts Department of Public Health</td>
</tr>
<tr>
<td>Erin Maughan</td>
<td>Director of Research</td>
<td>National Association of School Nurses</td>
</tr>
<tr>
<td>Erin Rose</td>
<td>Vice-President</td>
<td>Social Equity Three-Cubed</td>
</tr>
<tr>
<td>Gayle Higgins</td>
<td>Pediatric Nurse Practitioner</td>
<td>St. Christopher Hospital</td>
</tr>
<tr>
<td>Hannah J. Green</td>
<td>Director of National Health Policy</td>
<td>American Lung Association</td>
</tr>
<tr>
<td>Janice Nolen</td>
<td>Assistant Vice President</td>
<td>American Lung Association</td>
</tr>
<tr>
<td>Kate Horton</td>
<td>Research Professor</td>
<td>George Washington Univ. School of Public Health</td>
</tr>
<tr>
<td>Myrna Esquivel</td>
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<td>City of San Antonio/GHHI</td>
</tr>
<tr>
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<td>Senior Advisor</td>
<td>Centers for Disease Control</td>
</tr>
<tr>
<td>Peter Ashley</td>
<td>Director of Policy and Standards Division</td>
<td>Department of Housing &amp; Urban Development</td>
</tr>
<tr>
<td>Rebecca Jensen Bruhl</td>
<td>Assistant Professor</td>
<td>Baylor College of Medicine</td>
</tr>
<tr>
<td>Sam H. Rubens</td>
<td>Assistant Director</td>
<td>Summit County Public Health</td>
</tr>
<tr>
<td>Shoshanna Brown</td>
<td>Executive Director</td>
<td>A.I.R. NYC</td>
</tr>
<tr>
<td>Susan Steppe</td>
<td>Program Director</td>
<td>Le Bonheur Hospital</td>
</tr>
<tr>
<td>Tracey Mitchell</td>
<td>Environmental Protection Specialist</td>
<td>Environmental Protection Agency</td>
</tr>
</tbody>
</table>
Protecting Public Health and the Environment through Health Care Collaboration and Reimbursement of Preventive Asthma Control Strategies

Tracey Mitchell, RRT, AE-C
mitchell.tracey@epa.gov

U.S. Environmental Protection Agency
Indoor Environments Division
EPA’s Role in Asthma

**Agency Mechanisms**
- Regulatory Measures
- Research
- Guidance Development
- Outreach & Education
- Partnerships; Leveraging systems

**IED Asthma Program Aim**
Get environmental controls into all elements of asthma management.
- Health care
- Housing
- Schools
- Community Systems, with a special focus on EJ
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.†

### EFFECTIVE IN-HOME ENVIRONMENTAL INTERVENTIONS

<table>
<thead>
<tr>
<th><strong>Home-Based</strong></th>
<th><strong>Multi-Component</strong></th>
<th><strong>Multi-Trigger</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Includes at least one home visit by trained personnel to improve the home environment</td>
<td>- Includes at least two components, including at least one environmental component</td>
<td>- Targets two or more potential asthma triggers, including mice, cockroaches, dust mites, excess moisture and mold, household pets, tobacco smoke</td>
</tr>
<tr>
<td>- Examples: community health workers, clinicians, health care providers</td>
<td>- Activities may include asthma-related education, self-management training, environmental assessment and remediation, social services, coordinated care</td>
<td></td>
</tr>
</tbody>
</table>

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Evolution of IED’s Asthma Program

Sustainable Financing

Practice

Policy

Science-Care Guidelines

- NAEPP Care Guidelines (NHLBI)
- NAS Report (EPA)
- Community Guide (CDC)
- Asthma Health Outcomes Project (EPA)

- Guidelines Implementation Panel Report (NHLBI)
- Asthma Disparities Action Plan and Healthy Homes Strategy (EPA, HHS, HUD)

- Healthcare providers delivering comprehensive care
- Programs delivering in-home asthma care services & receiving coverage

Science, Policy & Practice in Place
Environmental Health Metrics for Evaluation

Building the Evidence Base by Implementing Best Practices

**Tobacco Use**
- Reduce the proportion of nonsmokers exposed to secondhand smoke
- Increase the proportion of smoke-free homes

**Environmental Health Education**
- Environmental health education in the home setting
- Duration of environmental health education
- Proportion of home visits completed by type of educator

**Environmental Health in the Home**
- Environmental Remediation
- Environmental Health Assessment
- Environmental Control Supplies

**Composite Measures**
- Environmental Scoring System

Source(s): see Works Cited
Goals of the National Initiative for Asthma Reimbursement

The National Initiative for Asthma Reimbursement has three main goals.

The 2018-19 EMHOME Work Group focused on achieving the third goal which is the key to achieving the second goal of reimbursement.

1. Increase the number of home visiting programs providing comprehensive asthma (including environmental remediation of asthma triggers) interventions.

2. Increase the number of health plans serving Medicaid populations and/or state Medicaid programs that reimburse for these comprehensive services.

3. Increase the use of standardized environmental management & health outcomes metrics for evaluation (EMHOME)
Federal Standards & Recommendations

Most of the measures in the paper were selected from existing efforts at metric standardization, specifically:

• Healthy People 2020
• Asthma Outcomes Workshop (2012)
• Standards Subcommittee of the Asthma Disparities Workgroup (2016)
• A Roadmap for Promoting Health Equity and Eliminating Disparities: The Four I’s for Health Equity
• CDC 6|18 Initiative
• CDC’s EXHALE: A Technical Package to Control Asthma
Categories of Measures

*These measures are presented in six categories:*

1. Outcomes
2. Assessment & Monitoring of Asthma Severity and Control
3. Control of environmental factors and co-morbid conditions that affect asthma
4. Education for a partnership in care/patient self-management education
5. Medication adherence
6. Coordination of care
Classification of Measures

The measures selected for inclusion in each category were then classified according to use, validation, and standardization of the methodology, as follows:

**Core Measures**

- A set of measures that are validated and standardized and should be included for purposes of evaluation.

**Supplemental Measures**

- A set of measures that are validated and standardized, optional for inclusion.

**Emerging Measures**

- A set of measures with potential to expand or improve certain aspects of disease monitoring that are not yet standardized, require further validation, optional for inclusion.
## Core Measures: Outcomes, Assessment & Monitoring of Asthma and Control of Environmental Factors

<table>
<thead>
<tr>
<th>Domain</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcomes</strong></td>
<td></td>
</tr>
<tr>
<td>Health Care Utilization</td>
<td>Reduce hospitalizations for asthma; asthma hospitalization rate</td>
</tr>
<tr>
<td></td>
<td>Reduce emergency department (ED) visits for asthma; asthma emergency department (ED) visits</td>
</tr>
<tr>
<td>Quality Improvement</td>
<td>Asthma Medication Ratio (AMR)</td>
</tr>
<tr>
<td></td>
<td>Medication Management for Asthma (MMA)</td>
</tr>
<tr>
<td><strong>Assessment &amp; Monitoring of Asthma Severity and Control</strong></td>
<td></td>
</tr>
<tr>
<td>Composite Measures</td>
<td>Asthma Control</td>
</tr>
<tr>
<td></td>
<td>Asthma Severity</td>
</tr>
<tr>
<td><strong>Control of Environmental Factors and Comorbid Conditions</strong></td>
<td></td>
</tr>
<tr>
<td>Tobacco Use</td>
<td>Reduce the proportion of non-smokers exposed to secondhand smoke</td>
</tr>
<tr>
<td></td>
<td>Increase the proportion of smoke-free homes</td>
</tr>
</tbody>
</table>

Reimbursement payments are often linked to Health Care Utilization and Quality Improvement but need to include other measures across the guideline-based categories to ensure health equity.

Source(s): see Works Cited
## Core Measures: Education, Medication Adherence, and Care Coordination

<table>
<thead>
<tr>
<th>Domain</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education for a Partnership in Care/Patient Self-Management Education</strong></td>
<td></td>
</tr>
<tr>
<td>Health Care Quality</td>
<td>Increase the proportion of persons with current asthma who receive formal patient education</td>
</tr>
<tr>
<td></td>
<td>Asthma Action Plan</td>
</tr>
<tr>
<td><strong>Medication Adherence</strong></td>
<td></td>
</tr>
<tr>
<td>Medication Utilization</td>
<td>Increase the proportion of persons with current asthma with prescribed inhalers who receive instruction on their use</td>
</tr>
<tr>
<td></td>
<td>Increase the proportion of persons with current asthma who do not use more than one canister of short-acting inhaled beta agonist per month</td>
</tr>
<tr>
<td><strong>Care Coordination</strong></td>
<td></td>
</tr>
<tr>
<td>Primary Care Connection</td>
<td>Increase the proportion of persons with current asthma who have had at least one routine follow-up visit in the past 12 months</td>
</tr>
<tr>
<td></td>
<td>Primary Care Connection after Emergency Department Visits for Asthma</td>
</tr>
</tbody>
</table>

Reimbursement payments also need to include the capacity to track the performance of programs using other standardized measures that explain the resultant outcomes.

Source(s): see Works Cited
## Supplemental Measures

<table>
<thead>
<tr>
<th>Domain</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcomes</strong></td>
<td></td>
</tr>
<tr>
<td>Health Care Costs</td>
<td>Asthma-specific cost of care</td>
</tr>
<tr>
<td></td>
<td>Total Cost of Care</td>
</tr>
<tr>
<td>Quality of Life – Productivity Loss</td>
<td>Reduce the proportion of persons with asthma who miss school or work days; missed school/work days due to asthma</td>
</tr>
<tr>
<td>Quality of Life – Composite</td>
<td>Quality of Life – Patient</td>
</tr>
<tr>
<td></td>
<td>Quality of Life - Caregiver</td>
</tr>
<tr>
<td><strong>Assessment &amp; Monitoring of Severity &amp; Control</strong></td>
<td></td>
</tr>
<tr>
<td>Composite Measures</td>
<td>Optimal Asthma Control</td>
</tr>
<tr>
<td><strong>Care Coordination</strong></td>
<td></td>
</tr>
<tr>
<td>Maternal, Infant, and Child Health</td>
<td>Increase in the proportion of children with special health care needs who receive care in family-centered, comprehensive, and coordinated systems</td>
</tr>
</tbody>
</table>

Use of more patient-centered measures provide programs the capacity to ensure the quality of care, promote health equity and link the resultant outcomes of health care utilization and cost to guidelines-based care measures.

Source(s): see Works Cited
Emerging Measures

<table>
<thead>
<tr>
<th>Domain</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control of Environmental Factors and Co-morbid Conditions that Affect Asthma</strong></td>
<td></td>
</tr>
<tr>
<td>Environmental Health</td>
<td>Environmental remediation (minor vs. moderate/major)</td>
</tr>
<tr>
<td></td>
<td>Environmental health assessment</td>
</tr>
<tr>
<td></td>
<td>Environmental control supplies</td>
</tr>
<tr>
<td>Composite Measures</td>
<td>Environmental Scoring System</td>
</tr>
<tr>
<td><strong>Education for a Partnership in Care/Patient Self-Management Education</strong></td>
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<tr>
<td>Self-Management Strategies</td>
<td>Environmental health education in the home setting</td>
</tr>
<tr>
<td></td>
<td>Duration of environmental health education</td>
</tr>
<tr>
<td></td>
<td>Proportion of home visits completed by type of educator (nurse, respiratory therapist, community health worker etc.)</td>
</tr>
</tbody>
</table>

Use of the recommended environmental health measures will allow for continuing to build the evidence base, greater comparability of program results and most importantly makes possible the reimbursement of services.

Source(s): see Works Cited
In each category there are existing measures which are standardized measures that can be collected in addition to the recommended measures.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Type</th>
<th>Measure</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>Indoor Allergens</td>
<td>Core</td>
<td>Reduce indoor allergen levels: cockroaches</td>
<td>Healthy People 2020 EH-13.1</td>
</tr>
<tr>
<td></td>
<td>Core</td>
<td>Reduce indoor allergen levels: mouse</td>
<td>Healthy People 2020 EH-13.2</td>
</tr>
<tr>
<td>Tobacco Use</td>
<td>Core</td>
<td>Reduce the proportion of nonsmokers exposed to secondhand smoke</td>
<td>Healthy People 2020 TU-11</td>
</tr>
<tr>
<td></td>
<td>Core</td>
<td>Increase the proportion of smoke-free homes</td>
<td>Healthy People 2020 TU-14</td>
</tr>
<tr>
<td></td>
<td>Supplemental</td>
<td>Tobacco smoke exposure: screening\textsuperscript{lxvii}</td>
<td>American Academy of Allergy Asthma &amp; Immunology Measure #2</td>
</tr>
<tr>
<td></td>
<td>Supplemental</td>
<td>Tobacco smoke exposure: intervention\textsuperscript{lxviii}</td>
<td>American Academy of Allergy Asthma &amp; Immunology Measure #3</td>
</tr>
<tr>
<td>Composite Measures</td>
<td>Emerging</td>
<td>Environmental Scoring System</td>
<td>Dong et al. (2018)</td>
</tr>
</tbody>
</table>

**Recommended measures** were selected with the goal of supporting reimbursement.
Value of Recommended Metrics
Care Coordination Measures

Goal

- Identify patient's specific needs
- Create a personalized plan
- Ensure plan adheres to guidelines and is followed at every step
- Use data sources
- Leverage infrastructure
- Readily communicate with providers

Value

- Reduce duplication of effort
- Connect services efficiently
- Limit gaps between providers
- Positive outcomes, enhanced quality of life, reduced disparities, costs, and utilization
- Increased trust and adherence

Source(s): see Works Cited
Using the Metrics

Erin D. Maughan PhD, MS, RN, PHNA-BC, FNASN, FAAN
Director of Research
emaughan@nasn.org
NATIONAL SCHOOL HEALTH DATA SET: EVERY STUDENT COUNTS!
Metrics

• Missed days of school
• Persons who receive formal patient education
• Asthma Action Plan
• Care Coordination
“It is easier to build strong children than to repair broken men”

-Frederick Douglass
The Houston Integrated Intervention Targeting Better Asthma Control (HIITBAC)

Program Evaluation Metrics

Rebecca Jensen Bruhl, DrPH, MPH, MEM
Rebecca.Bruhl@bcm.edu
EMHOME Webinar
Wednesday, September 4, 2019
BCM Environmental Health: Overview

- Recent Asthma HV Research Initiatives
  - PCORI HIITBAC
  - NIEHS HIITBAC2-HH (Hurricane Harvey)
  - HUD Breathe Easy (multifamily housing)
- Clinically based, multicomponent, home intervention program
  - Clinical assessment
  - Home assessment
  - Follow-up home visits (5 visits total, 1 year)
Asthma Program Metrics, Research Context

- **Primary Outcomes**
  - Quality of Life (Juniper mAQLQ)
  - Asthma control (ACT)
  - Healthcare utilization (ED visits)

- **Secondary Outcomes**
  - Symptom-free days, past 2 weeks
  - Pulmonary function (spirometry)

- **Other (examples)**
  - Trigger exposure (e.g., dust, cockroaches)
  - Exposure-reduction behavior (e.g., use of pillow/bedding covers, discontinued use of air fresheners)

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<table>
<thead>
<tr>
<th>Data Collected</th>
<th>HITBAC1</th>
<th>HITBAC2-HH</th>
<th>Breathe Easy</th>
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<tr>
<td></td>
<td>01/01/15-01/26/18</td>
<td>05/01/18-09/30/19</td>
<td>10/01/19-12/31/20</td>
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<td>Questionnaires</td>
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<td>Exposure history</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>CRS symptoms</td>
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<tr>
<td>Quality of Life</td>
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<td>Healthcare utilization</td>
<td>X</td>
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<td>Social support</td>
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<tr>
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<td>Clinical Measures</td>
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<td>--</td>
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<td>Exhaled nitric oxide</td>
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<td>Home Measures</td>
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<td>Temperature</td>
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<td>Relative humidity</td>
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<td>Biospecimens</td>
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<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>Sputum</td>
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</tbody>
</table>

**Abbreviations:** IgE, immunoglobulin E; VOCs, volatile organic compounds; Zone 6, a panel of 29 allergens common to southcentral U.S.
# Metrics for Program Sustainability

## Outcomes
- Improve asthma control
- Improve quality of life
- Reduce healthcare utilization (ED visits, hospitalizations, total cost of care)
- Reduce in-home triggers, improve composite assessment score
- Improve PCP handoff, increased knowledge (guidelines-based care)
- Improve medication adherence

## Process Measures
- ACT, protocols completed at visits
- Duration of visit
- Remediation tier, supplies provided
- Information shared with PCP
- Identified goals, barriers with motivational interviewing
- Education protocols completed (asthma self-management and environmental health)
- Referrals received, referrals provided

## Program Quality
- Education modules (current standard curriculum)
- Staff training in protocols, continuing education
- Credentials of staff
- QA/QC process
- Oversight systems

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Bottom line: metrics matter for researchers, healthcare providers, payers... and patients!

EMHOME Webinar
Intersection with Amerigroup Process Flow

Maryland Process Flow with EMHOME Activities and Metrics

Initial Home Visit
Short-Term 0-3 Months
- Asthma control
- Asthma severity
- Duration of environmental health education in the home setting
- Proportion of home visits completed by type of educator
- Environmental health education
- Environmental health assessment
- Environmental control supplies

Second Home Visit
Short-Term 0-3 Months
- Asthma control
- Asthma control
- Asthma severity
- Duration of environmental health education in the home setting
- Proportion of home visits completed by type of educator
- Environmental health education
- Environmental remediation

Follow Up Case Management
Intermediate 3-5 Month
- Increase instruction on inhaler use
- Reduce nonsmokers exposure to secondhand smoke.
- Increase smoke-free homes

Long Term 12 Month
- Reduce hospitalizations for asthma
- Reduce ED visits for asthma
- AMR
- MMA
- Asthma-specific cost of care
- Total cost of care
- Reduce missed work/school days
- Routine formal education

Orange: Environmental health Educator
Purple: Environmental health assessor
Blue: Administrative data
Green: Survey

Amerigroup
GHHI
Performance Improvement Projects

Asthma Medication Ratio Indicator Results CY 2017 is the first remeasurement year of data collection for the Asthma Medication Ratio PIP in the State of Maryland.

Figure 1 represents the Asthma Medication Ratio PIP indicator rates for all MCOs. Figure 1. CY 2016 - CY 2017 AMR Rates

Figure 1. CY 2016 - CY 2017 AMR Rates

![Graph showing AMR PIP rates for different MCOs]
### Historical Benchmarking with Healthy People 2020

<table>
<thead>
<tr>
<th>Description</th>
<th>Baseline (2007)</th>
<th>Measure</th>
<th>Target Setting Method</th>
<th>Target (2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce hospitalizations for asthma among children under age 5 years</td>
<td>41.4</td>
<td>per 10,000</td>
<td>Minimal statistical significance</td>
<td>18.2</td>
</tr>
<tr>
<td>Reduce hospitalizations for asthma among children and adults aged 5 to 64 years</td>
<td>11.1</td>
<td>per 10,000</td>
<td>Minimal statistical significance</td>
<td>8.7</td>
</tr>
<tr>
<td>Reduce hospitalizations for asthma among adults aged 65 years and older</td>
<td>25.3</td>
<td>per 10,000</td>
<td>Minimal statistical significance</td>
<td>20.1</td>
</tr>
</tbody>
</table>

**Hospitalizations for asthma among children (per 10,000 population, <5 years)**

By Geographic Region (Of Hospital)

- 2020 Target: 18.2
- Desired Direction: ↓ Decrease desired

**Children exposed to secondhand smoke (percent, nonsmokers, 3–11 years)**

By Total

- 2020 Baseline (year): 52.2 (2005-06)
- 2020 Target: 47.0
- Desired Direction: ↓ Decrease desired

Data Source: National Hospital Discharge Survey (NHDS); Centers for Disease Control and Prevention, National Center for Health Statistics (CDC/NCHS)

- Population Estimates
- U.S. Census Bureau (Census)

Error Bar ($) represents the 95% confidence interval.

Additional footnotes may apply to these data. Please refer to footnotes below the data table for further information.
Performance Benchmarking with Patient-Centered Measures

Validated Instruments and Minimally (Clinical) Important Difference

### Assessment & Monitoring of Asthma Severity and Control

<table>
<thead>
<tr>
<th>Domain</th>
<th>Core Measure</th>
<th>Score Ranges</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite Measures</td>
<td>Asthma Control Test (ACT) or Childhood Asthma Control Test (C/ACT)</td>
<td>ACT – ranges from 5 to 25</td>
<td>ACT MCID = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CACT – ranges 0 to 27</td>
<td>CACT MCID = 2</td>
</tr>
<tr>
<td></td>
<td>Composite Asthma Severity Index (CASI)</td>
<td>Ranges from 0-20</td>
<td>MID = 0.9</td>
</tr>
</tbody>
</table>

Source: Dong et al (2018), Nathan et al. (2004), Schatz et al. (2009), and Wildfire et al (2012). Figure 1 is from Dong et al (2018).
Value-Based Purchasing Contracts

<table>
<thead>
<tr>
<th>Measure Domain</th>
<th>Metric</th>
<th>Target Year 1</th>
<th>Target Year 2</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Gate (applicable both Years 1 &amp; 2)</td>
<td>Percentile in medication management for asthma or asthma medication ratio</td>
<td>50%</td>
<td>60%</td>
<td>1</td>
</tr>
<tr>
<td>Success Measures (Year 2 targets over Year 1, not cumulative)</td>
<td>Optimal Asthma Control (Composite of Asthma Control and ED Visits)</td>
<td>20%</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Decrease in Inpatient Days for asthma-related admissions</td>
<td>20%</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Increase the proportion of persons with current asthma who receive formal patient education</td>
<td>20%</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Reduce the proportion of non-smokers exposed to secondhand smoke</td>
<td>10%</td>
<td>20%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total Possible Quality Points</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Shared Savings by Total cost of care reductions</td>
<td></td>
<td>100%</td>
<td>50%</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80%</td>
<td>40%</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60%</td>
<td>30%</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40%</td>
<td>20%</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20%</td>
<td>10%</td>
<td>1</td>
</tr>
<tr>
<td>Bonus</td>
<td>If total % decreases in Year 2 when summed for all measures are greater than 60% = 60% savings</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Example by GHHI & Health Management Associates
Questions?

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President & CEO
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Brendan Brown
Project Lead
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Website: http://www.greenandhealthyhomes.org/
Twitter: @HealthyHousing
Facebook: GHHInational
Instagram: healthy_housing
Upcoming Opportunities

GHHI’s 10th Annual Executive Leadership Institute
• Baltimore, MD – September 15th-17th, 2019
• Register Here

National Initiative for Asthma Reimbursement:
Request For Proposals
• Business Development
• Reimbursement Support

Publication Release:
Recommendations for Evaluation Metrics for Asthma Home Visiting Programs
• Publication will be released in September and located on our website at National Initiative for Asthma Reimbursement
# Count of Recommended Measures by Classification

<table>
<thead>
<tr>
<th>Evaluation Components</th>
<th>Core Measures</th>
<th>Supplemental Measures</th>
<th>Emerging Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Assessment &amp; Monitoring</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Control of Environmental Factors &amp; Comorbid Conditions</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Education for a Partnership in Care</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Medication Adherence</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Care Coordination</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>
## Asthma Working Groups and Taskforces

<table>
<thead>
<tr>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The National Asthma Education and Prevention Program</strong></td>
</tr>
<tr>
<td>Guidelines for the Diagnosis and Management of Asthma (EPR-3)</td>
</tr>
<tr>
<td>Presidential Task Force on Asthma</td>
</tr>
<tr>
<td>Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities</td>
</tr>
<tr>
<td>Asthma Disparities Subcommittee</td>
</tr>
<tr>
<td>Immunotherapy Options for Treatment of Allergic Asthma Workgroup (PCORI)</td>
</tr>
<tr>
<td>American Academy of Allergy Asthma &amp; Immunology</td>
</tr>
<tr>
<td>Something new in the air: Paying for community-based environmental approaches to asthma prevention and control</td>
</tr>
<tr>
<td>Creation and implementation of SAMPRO™: A school-based asthma management program</td>
</tr>
<tr>
<td><strong>Federal Healthy Homes Workgroup: Advancing Healthy Housing - A Strategy for Action</strong></td>
</tr>
</tbody>
</table>
### CDC Quality Measures Table

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Metric</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Measure</td>
<td>Asthma Medication Ratio</td>
<td>Medication</td>
</tr>
<tr>
<td></td>
<td>New Asthma Medication Delivery Device</td>
<td>Medication</td>
</tr>
<tr>
<td></td>
<td>Rate of Emergency Department Use</td>
<td>Utilization</td>
</tr>
<tr>
<td>Composite measures</td>
<td>Optimal Asthma Control*</td>
<td>Not Categorized</td>
</tr>
<tr>
<td>Patient-Centered</td>
<td>Primary Care Connection after Emergency Department Visit</td>
<td>Care Coordination</td>
</tr>
</tbody>
</table>
LOGIC MODEL: GHHI Maryland

**Resources**
- Assessors
- Case Managers
- Educators
- Computer System
- Data Mgmt. System
- Funding
- Capacity/Time

**Activities**
- Acute Care Visit
- Referral from Hospital or Health Plan
- Intake Enrollment
- Initial Home Visit
- Second Home Visit
- Case Management

**Outputs**
- Client Engagement
- Health Assessment
- Provider Asthma Mgmt. Education
- Asthma Self Mgmt. Education
- Scope of Work
- QA/QC

**Recommended Metrics**

**Short-Term**
- Asthma Control
- Asthma Severity

**Intermediate**
- Increase PWCA who receive formal patient education
- Environmental Health Education in Home Setting
- Asthma action plan
- Duration of Environmental Health Education
- Proportion of Home Visits Completed by Type of Educator

**Long-Term**
- Reduce hospitalization for asthma; asthma hospitalization
- Reduce ED visits for asthma; asthma ED visits
- AMR
- MMA
- Total cost of care
- Reduce the PWA who miss school or work
- Increase persons with current asthma who have had at least one routine follow-up visit
- Increase the proportion of smoke-free homes
- Increase proportion of PWCA w/prescribed inhalers who receive instruction on their use
- Environmental Health Assessment
- Environmental Remediation
Works Cited

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Krieger, J. (2010). Home is where the triggers are: increasing asthma control by improving the home environment. *Pediatric Allergy, Immunology, and Pulmonology, 23*(2), 139-145.


**Green and Healthy Homes Initiative** (2017 December). Healthy Homes and Asthma: A healthy housing blueprint to improving asthma outcomes.


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Healthy People 2020 RD-2;
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Healthy People 2020 TU-14


**Centers for Medicare & Medicaid Services** (2019 May 31b). NQF #1799 Medication Management for People with Asthma (MMA).


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Healthy People 2020 EH-13.1
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Krieger, J. (2010). Home is where the triggers are: increasing asthma control by improving the home environment. Pediatric Allergy, Immunology, and Pulmonology, 23(2), 139-145.
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Figure 1. HealthChoice, Maryland Department of Health. (October 2018). Medicaid Managed Care Organization performance Improvement Project Annual Report. Qlarant.
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Healthy People 2020

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Source: Example by GHHI & Health Management Associates

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