HOME-BASED ASTHMA EDUCATION AND ENVIRONMENTAL INTERVENTIONS IN ILLINOIS: THE CASE FOR SUSTAINABLE FINANCING

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September 2017
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Executive Summary

Asthma education and environmental management are evidence-based strategies that reduce asthma-related emergency department (ED) visits and hospitalizations and reduce health care costs. Despite the economic benefits, reimbursement for these strategies tends to be lower and/or less comprehensive than other recommended asthma management approaches.

Our goal is to expand access to evidence-based, home-based asthma education and environmental interventions for Illinois residents living with asthma through sustainable financing mechanisms. While there are a number of mechanisms described in this report that are available to accomplish this, we recommend the following for immediate exploration:

- Expand reimbursement for asthma educators, community health workers (CHW) and others currently outside of Illinois’ clinical licensure system;
- Establish a Health Homes Program that incorporates asthma care best practices;
- Apply for Section 1115 Research and Demonstration Waiver that includes home-based asthma education and environmental interventions;
- Utilize reimbursement through existing Medicaid channels such as early and periodic screening, diagnostic, and treatment and administrative costs;
- Amend contracts between state Medicaid and Medicaid Managed Care Organizations (MCO) to enable and provide guidance for the use of CHWs, and;
- Encourage Medicaid MCOs to expand in-home asthma education and environmental interventions, by providing these services or reimbursing other providers.

The Need

Asthma is a significant public health problem in Illinois, impacting quality of life, productivity, and personal and health system costs. Over 1,720,000 adults\(^1\) and children\(^2\), or more than 13% of Illinoisans, have been diagnosed with asthma during their lifetime. In 2014, there were 17,514 asthma hospitalizations among Illinois residents.\(^3\) Asthma accounts for approximately 2.5 million days of absenteeism in the state, including 748,000 missed schools days and 1.8 million in lost work days.\(^4\)

It is estimated that asthma caused over $1.4 billion in medical costs, across all payers and ages, and $131 million in absenteeism costs in 2012.\(^5\) Illinois’ medical costs related to asthma are projected to reach $1.9 billion by 2020.\(^5\)

Illinois residents enrolled in Medicaid are a population of particular concern with regard to asthma burden and cost. It is well documented that low-income populations have higher asthma prevalence, higher health care utilization, and poorer health outcomes related to asthma.\(^6\) Of those enrolled in Illinois Medicaid in 2015, 7.81% (or 247,226 individuals) had asthma.\(^7\) As a comparison,
4.7% of those enrolled in private insurance had asthma in 2012. It is estimated that asthma cost Illinois Medicaid more than $818 million (more than $3,310 per person) in service, pharmacy and capitation payments in 2015. This amount includes over $371.5 million in hospitalization costs, which can be largely preventable.

While we do not know how to prevent asthma, asthma can be controlled and costly ED visits, hospitalizations and absenteeism related to asthma can be avoided by following best practice guidelines for asthma management, as outlined by National Asthma Education and Prevention Program (NAEPP). The NAEPP is coordinated by the National Heart, Lung, and Blood Institute of the National Institutes of Health, and its best practice guidelines, the Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, are the most current set of evidence-based guidelines for asthma.

The four components of asthma management outlined by the NAEPP in its clinical practice guidelines are:

- Assessment and monitoring;
- Pharmacologic therapy;
- Patient education; and
- Control of environmental factors and comorbid conditions that affect asthma.

Patient education for asthma and environmental management has been shown to result in fewer ED visits and hospitalizations, and a report by the Asthma Regional Council, Investing in Best Practices for Asthma, states that “an increasingly robust body of evidence shows that these two aspects of effective asthma management not only improve symptoms, but do so at a reasonable cost.”

Despite the increasing body of evidence, reimbursement for these education and environmental interventions tends to be lower and/or less comprehensive than the assessment and monitoring and pharmacologic therapy components of the NAEPP components.

While individuals with insurance may fare better, even insured populations may lack sufficient coverage for asthma education and environmental control measures. According to the American Lung Association’s Asthma Care Coverage Project, the Illinois Medicaid program does not cover home visits and environmental interventions, and while there is some coverage for asthma education, access barriers exist.11

There are more than 3 million individuals who are currently enrolled in Medicaid in Illinois, with more than 66% of those enrolled in a Medicaid Managed Care plan. Of the 247,226 individuals with asthma enrolled in Illinois Medicaid in 2015, 201,696 were enrolled in a Medicaid managed care program. Medicaid and MCOs can play an important role in reducing barriers to effective asthma management activities, improving asthma management, and thereby reducing costs.
Home-based Asthma Education and Environmental Interventions

Background and Definitions

Noting the importance of asthma self-management education, NAEPP's Clinical Practice Guidelines also state that "asthma self-management education should be integrated into all aspects of asthma care, it requires repetition and reinforcement." NAEP defines asthma education as including: facts about asthma; definition of well-controlled asthma and the patient’s level of control; role of medications; skills that include inhaler technique; how to handle signs and symptoms of worsening asthma; when and where to seek care; and environmental exposure control measures.

For a definition of environmental interventions, one can look to the Community Preventive Services Task Force, an independent panel of public health and prevention experts who provide evidence-based findings and recommendations. The Task Force defines environmental interventions as: home-based, multi-trigger, multicomponent asthma interventions aimed at reducing exposure to multiple indoor asthma triggers. Environmental interventions, which are typically conducted during one or more home visits, include activities such as assessing the home environment, reducing exposure to asthma triggers through mitigation, and providing education about the home environment. These programs often also include general asthma education, asthma self-management education, social support, and referral to social services and coordination of care.

Environmental interventions and remediation can range in intensity depending on asthma severity, health care utilization, and the needs of the affected family. Low-intensity efforts may include providing recommendations on the environmental changes that should be made in the home and distributing low-cost supplies such as mattress and pillow covers. Moderate-intensity efforts may include the involvement of a trained home visitor and the provision of multiple low-cost materials, including small air filters and dehumidifiers, integrated pest management, and minor structural repairs. High-intensity efforts may include major structural improvement such as carpet removal, or ventilation system replacement.

A variety of trained professionals can provide home-based asthma education and environmental interventions. These can include Community Health Workers (CHW), certified asthma educators, social workers, healthy homes specialists, nurses or other qualified professionals. The important role of CHWs is specifically mentioned by the Community Preventive Services Task Force and is highlighted in other reports related to reimbursement of health services.

A CHW, as defined by the American Public Health Association, is "a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the worker to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery."
Illinois House Bill 5412 (HB 5412), passed in July 2014, formally recognized the CHW profession in Illinois, establishing a clearer career path for CHWs. The legislation also created the Illinois CHW Advisory Board, charged with creating recommendations to integrate CHWs more fully in Illinois. The CHW Advisory Board recommendations were published in January 2016.\textsuperscript{17} While this legislation provides an important step forward for recognizing the work of CHWs, there is currently no mechanism in Illinois to reimburse for the services provided by CHWs.

The Evidence – Impact and Cost Savings

As previously noted, asthma education and environmental remediation have been well established in the literature to improve asthma outcomes and save money, and are recommended within the evidence-based clinical practice guidelines for asthma. In addition, home-based, multicomponent environmental intervention is the only intervention for children and adolescents with asthma that is recommended by the Community Preventive Services Task Force. Through its systematic review, the Task Force found strong evidence that these interventions are effective in decreasing asthma symptom days and improving productivity among children and adolescents. The Task Force further found that home-based, multi-trigger, multicomponent interventions with minor or moderate environmental remediation and an educational component provide good value for the money invested because of an increase in symptom-free days, improvements in productivity and increased health care savings. Cost-benefit analyses show a return of $5.30 to $14.00 for each dollar invested. While the Task Force has found stronger evidence for these interventions in children and adolescents, the interventions may also be beneficial for adults.\textsuperscript{18,19}

There is an increasing body of evidence about the cost effectiveness and returns on investments of CHWs for a variety of health conditions.\textsuperscript{20,21,22} A CHW asthma intervention in Hawaii led to decreases in ED visits and quality of life improvements.\textsuperscript{23} The study found asthma-related per capita charges decreased from $735 to $181. A New York City study of children with asthma, found that following implementation of a CHW model, overnight hospitalizations decreased from 43\% to 16\%, and ED visits dropped from 82\% to 39\%.\textsuperscript{24} Finally, a CHW program targeting parents of children with asthma with repeated ED visits in Massachusetts found return on investments of $4 for every $1 invested and pediatric asthma-related hospital admissions and ED visits fell by 45\%, and 50\% respectively in a seven-year period.\textsuperscript{25}

Organizations in Illinois have also played an active role in providing home-based asthma education and environmental interventions, and evaluating its effectiveness. Sinai Urban Health Institute (SUHI), the research arm of Sinai Health System in Chicago, has extensive expertise with CHW interventions for asthma, having implemented and evaluated a series of seven interventions to decrease asthma-related morbidity and improve the quality of life of inner-city children and adults with asthma and their families. Findings from SUHI’s work have indicated that ED visits and hospitalizations have decreased by about 70\% and Quality of Life scores have improved significantly across the programs. Costs savings have been substantial, ranging from $2.33 to $7.79 per dollar spent.\textsuperscript{26,27,28}
Avenues towards reimbursement for Medicaid and Medicaid MCOs

Through its Medicaid Program and working with Medicaid MCOs, the State of Illinois can increase access to sustainable home-based asthma education and environmental interventions in a variety of ways.

♦ *Expand reimbursement for asthma educators, CHWs and others currently outside of Illinois’ clinical licensure system*

Effective January 2014, a CMS rule on Essential Health Benefits (CMS-2334-F), based on changes enumerated in the Affordable Care Act (ACA), clarified that states could reimburse for preventive services that are “recommended by a physician or other licensed practitioner within the scope of their practice under State law” (as opposed to the previous rule stating that services should be provided *directly* by a physician or other licensed provider). This change has opened the door for Medicaid reimbursement for preventive services provided by health professionals currently outside of Illinois’ clinical licensure system. Among the services that may now be reimbursable are home visiting services, which can include home-based asthma education, provided by CHWs or other non-licensed professionals. To adopt this rule, Illinois Medicaid needs to submit a State Plan Amendment to CMS that describes what services will be covered, who will provide them, and baseline qualifications.

♦ *Establish a Health Homes Program that incorporates asthma care best practices*

Health Homes programs are authorized by the ACA to coordinate care for Medicaid enrollees who have two or more chronic conditions, such as asthma, COPD, AIDS/HIV, diabetes, or another allowable chronic condition. Health Homes are required to provide core services that include comprehensive care management; care coordination, health promotion; comprehensive transitional care and follow-up; patient and family support; and referrals to community and social support. The federal government matches 90% of the costs for the first 2 years of a state’s Health Homes program. Asthma is an ideal condition for inclusion in a state’s Health Homes program, and according to an analysis by the Harvard Law School Center for Health Law & Policy Innovation, CHWs would be “particularly well-positioned” to provide four of the six core services for Health Homes.

♦ *Apply for Section 1115 Research and Demonstration Waiver that includes home-based asthma education and environmental interventions*

CMS allows states to request that certain Medicaid requirements be waived, in order to pilot an innovative project or evaluate new policy approaches. Section 1115 Research & Demonstration waiver are an important tool that can be used for large systematic changes (i.e. exploring new payment models or community prevention programs) and is the most applicable to expanding home-based asthma education and environmental interventions.

♦ *Utilize Reimbursement through Existing Medicaid Channels*

- *Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) –* EPSDT is a benefit to Medicaid enrollees under the age of 21. This benefit covers a broad range of preventive, acute care, diagnostic and treatment services, which are not limited to clinical settings and can be provided in home and community settings. Home-based asthma education and home
trigger reduction strategies should be a component of the anticipatory guidance required by EPSDT regulations. With the CMS rule change enabling services recommended by a physician or licensed provider, there is also an opportunity for states to expand the types of authorized providers performing EPSDT services in home or community settings to include CHWs and asthma educators; however, this would also require the filing of a state plan amendment.

- **Reimbursement for Administrative Costs** – States can receive partial reimbursement of home-based asthma education and environmental interventions through coverage of service and administrative costs. Service costs typically refer to patient care activities and administrative costs including activities like, "enrolling individuals and coordinating and monitoring services for Medicaid recipients." Some of these administrative costs may be reimbursable, and both service costs and administrative costs can be billed from the same patient interaction. In addition, the CMS Center for Medicaid and Children’s Health Insurance Program (CHIP) Services "may also match a percent of staffing and administrative expenses for state Medicaid offices and clinics to better achieve cost control, improve information technology infrastructure, and provide interpreter, outreach, and coordination services.”

- **Opportunities through the CMS Innovation Center** – The CMS Innovation Center was created with the purpose of "testing innovative payment and service delivery models to reduce program expenditures . . . while preserving or enhancing quality of care” for individuals who receive Medicaid or Medicare benefits. Within Illinois, a number of models are currently being tested that are relevant to asthma education and/or the utilization of CHWs. The Coordination of Healthcare for Complex Kids (CHECK) program at the University of Illinois at Chicago focuses on low-income children and young adults with chronic conditions and will establish a medical neighborhood model to address lack of access to care through the work of CHWs, care coordinators and information technology systems to facilitate communication. The National Health Care for the Homeless Council is integrating CHWs into federally qualified health centers across 12 US communities, including in Illinois, to connect homeless individuals to a health center and away from the ED. If the models being tested both locally and nationally prove to be effective in reducing health care costs while improving quality of care, it is likely that such strategies will be more widely implemented.

- **Amend contracts between state Medicaid and Medicaid MCOs**

In comparison to the traditional fee-for-service system, MCOs have greater flexibility to offer a broader range of services. For example, according to the National Center for Healthy Housing’s 2015 report on Medicaid reimbursement, while Medicaid does not reimburse for the direct provision of environmental remediation services such as dust mite-free bedding, an MCO can provide such services so long as they are permissible under the MCO’s contract with the state. MCOs’ flexibility and the ability for the state to amend MCO contracts make for a plausible solution for coverage of home-based asthma education and environmental interventions.

> "MCOs have a lot of flexibility to broaden the types of providers who can offer the [in-home education and environmental interventions] services to plan enrollees."

National Center for Healthy Housing

MCOs also have the ability to employ CHWs or asthma educators, or subcontract with organizations who employ these non-licensed professionals. Regardless of MCOs’ ability to employ CHWs, their services would not be reimbursable by Medicaid without an amended
contract with the state Medicaid program to *permit or require* use of CHW services. There is interest in expanding the reimbursement of CHWs in Illinois. In its January 2016 report, the Illinois CHW Advisory Board recommends that the Illinois Department of Healthcare and Family Services amend its contracts with MCOs to enable them to utilize CHWs as members of their teams or subcontract with organizations that employ CHWs. The inherent flexibility of MCOs to provide a broad range of services and states’ ability to amend contracts makes for a very appealing and plausible means for expanding coverage for in-home asthma interventions. Through this contractual arrangement, states can require MCOs to “establish a minimum ration of CHWs to beneficiaries, establish a minimum list of services that CHWs must provide, and establish other requirements.”

- Encourage Medicaid MCOs to expand in-home asthma education and environmental interventions, by providing these services or reimbursing other providers

As mentioned above, Medicaid MCOs have the ability to provide in-home asthma education and environmental interventions through employing their own asthma educators or subcontracting with organizations to provide these important services. They can also utilize professionals who are currently outside of the state’s licensure system. Currently, in-home asthma education and environmental interventions have often been considered an administrative expense for MCOs. MCOs may choose to cover certain services under an administrative budget if these services save them money from somewhere else (i.e. reducing urgent care costs), which in-home asthma education and environmental interventions have been shown to do.

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**An MCO-Community Partnership in Chicago**

Sinai Urban Health Institute (SUHI) initiated the Asthma Care Partners (ACP) program in 2011, to work with payers to provide home-based, CHW-led asthma interventions to members with poor asthma control. A partnership between SUHI and Family Health Network (FHN), a Medicaid MCO provided the program at no cost to selected FHN members considered at highest risk of poor outcomes due to uncontrolled asthma. The program was delivered by CHWs in the participant’s home and included monthly contact with participants via home visits and phone calls. During these interventions, participants expanded their knowledge and understanding of asthma through education and hands-on demonstration of proper medical device technique; and home environmental assessments. For the 135 members who completed 12 months in the program, there was a 71% reduction in ED visits and a 81% reduction in hospital days (between the year prior to and the year following the intervention).

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**Moving Towards Implementation**

This white paper presents both the health benefits and cost savings that can be achieved when a CHW model is used to meet the needs of children and families dealing with asthma. The organizations that contributed to this paper will use it to meet with policymakers and payers, including the Illinois Department of Healthcare and Family Services, to increase uptake of evidence-based asthma interventions through potential financing of these interventions.

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1 Illinois Behavioral Risk Factor Surveillance System. (2014)
Asthma Interventions: The Case for Sustainable Financing


29 42 CFR 440.130(c)