ASTHMA MEDICATION DELIVERY PROJECT

MICHIGAN ASTHMA PREVENTION AND CONTROL PROGRAM

Michigan Department of Health and Human Services

Prepared by:
Samantha R. Wall, MPH
Program Evaluator

Evaluation Report

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Project Overview

The Asthma Medication Delivery Project (AMDP), facilitated and directed by the Michigan Department of Health and Human Services (MDHHS) Asthma Program and Child and Adolescent Health Centers Program, Child and Adolescent Health Centers, Detroit Public Schools Community District, and Henry Ford Health Systems for Children's Health Project of Detroit, aimed to increase medication adherence, self-management, education, and reduce negative asthma-related health outcomes through increased access to asthma medications.

This pilot program was implemented in two health centers identified by MDHHS staff and partners with identified need/potential for a medication delivery system to be established to benefit asthma patients. Child Adolescent Health Centers (CAHC) are school-based/linked entities tasked with the promotion of health in children and their families through preventive, primary, and early intervention health care services. There are 113 health centers throughout the state jointly funded by MDHHS and the Michigan Department of Education. Embracing the notion, "Healthy kids learn better," CAHC programs aim to increase access to basic health care for children and teens in Michigan. Centers provide a range of care encompassing numerous services including (not inclusive): co-management of chronic illnesses, health education, and medication assistance, each of which are crucial to improve access to care- especially as it relates to asthma. For this reason, CAHC's were leveraged for assistance in this pilot program.

Sites throughout the state were asked to volunteer to participate in this pilot study. Selection committee members employed different criteria while determining which site would be of benefit to test this care model. Aspects such as geographic location (rural, rural suburban, or urban), identified asthma burden in served population, and perceived reduction in medication access were considered. Three sites were recruited to participate in the feasibility study after conclusion of which, one site declined to participate in the pilot program due to structural changes. A data tracking sheet was provided for internal use and each site completed a summary performance survey upon pilot program completion. This report serves as the summary analysis of these two pilot program sites.

Statewide Asthma Demographics:

The chosen sites for pilot programs reside in the South East (Washtenaw County) and South West (Van Burren County) Regions of Michigan (Figure 1). Asthma indicators such as persistent asthma, emergency department visit and hospitalization rates, are comparatively high within each county with general stable or rising trend rates (Figure 2).

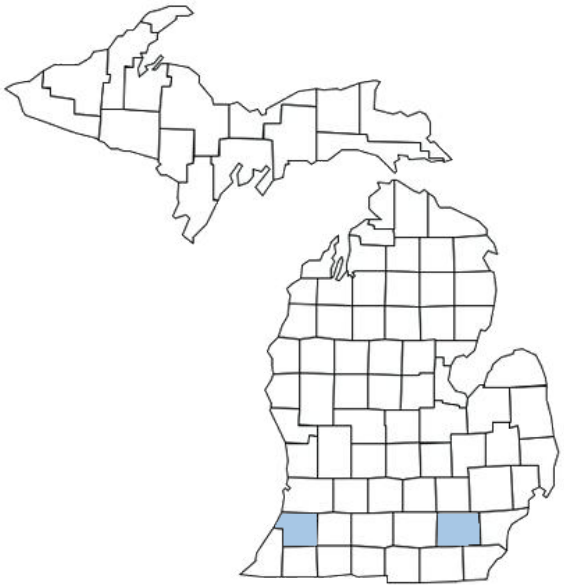


Figure 1. Washtenaw County (right) and Van Burren County (left).

		2011	2012	2013
Persistent Asthma (%) *Age-adjusted rates among all children in Medicaid*	Michigan	5.3	5.4	5.4
	Van Buren	3.7	3.7	4.0
	Washtenaw	7.8	8.0	7.4
Emergency Department Rate Per 10,000 People *Age-adjusted rates per 10,000 children in Medicaid*	Michigan	195.6	207.3	193.7
	Van Buren	120.7	163.7	125.7
	Washtenaw	255.2	271.7	261.3
Hospitalization Rate Per 10,000 People *Age-adjusted rates per 10,000 children in Medicaid*	Michigan	19.7	18.9	19.5
	Van Buren	12.4	12.7	11.4
	Washtenaw	34.3	26.6	43.6

Figure 2. Asthma indicators for 2011, 2012, and 2013 for persistent asthma, emergency department rate, and hospitalization rates.

Pilot Site County Demographics

Regional Alliance for Health Schools (RAHS): Washtenaw County

Between 2014-2016, 11.6% of adults and 9.4% of children living in Washtenaw County reported currently having asthma, with the prevalence of persistent asthma for children at 7.4% for children on Medicaid insurance plans reflecting a higher than state average prevalence. There were 6 reported deaths (5.7 per 1,000,000 people) due to asthma during this period and approximately 299 hospitalizations each year (9.6 per 10,000 people).

MDHHS also calculates emergency department reliance (EDR) which indicates the number of asthma related emergency department visits that should/could have occurred in the outpatient setting or a regularly scheduled doctors visit. The EDR for Washtenaw County in 2013 was 23%, which is higher than the state average. This number can indicate issues with coordinated care or problems with care access.

Van Buren Community Mental Health- Bangor Health Center: Van Buren County

Between 2014-2016, 12.8% of adults living in Van Buren County reported currently having asthma, with a child related estimate difficult to reliably establish, however, the prevalence of persistent asthma for children was

4%, reflecting only those children on Medicaid insurance plans. There were zero reported deaths due to asthma during this period but were about 54 hospitalizations each year (6.5 per 10,000 people).

The calculated EDR for Van Buren County in 2013 was 29.3%, which is higher than the state average, indicating potential issues with coordinated care or care access within the area.

Description of Site Implemented Program

RAHS:

For implementation of medication delivery, RAHS had medications delivered to the school health center, which served as the program's operational base, with medications being distributed and sent home with the child. RAHS also provided asthma education to each program participant including demonstration of correct usage of device, asthma action plans (copies provided to school upon consent), food allergy & anaphylaxis emergency plans, informational flyers, along with classes and educational material pertaining to: triggers, seasonal allergies, lung strengthening, and medication needs overtime. Additional educational materials were provided to teachers to promote knowledge of "How to respond to an asthma attack."

Bangor Health Center:

For implementation of medication delivery, Bangor Health Center determined that majority of patients passed a pharmacy on their way to or from the center and therefore delivery of medications was not beneficial to their given population. Education was provided to patients regarding the following: asthma triggers, signs and symptoms, prevention, medication device use, medication effects and side effects, and asthma control zones (green, yellow, red) and their meaning.

Program Outcomes

RAHS:

The RAHS pilot site had 4 patients participate with the medication delivery project. 6 prescriptions were delivered to the school and sent home with the child. RAHS identified that this program was most beneficial for patients with fragile living/home environments (divorced/single parent(s), living with a legal guardian, etc.). Education was given to each AMDP participant and families (educational materials provided outlined above). 75% of participants improved asthma control level as documented by ACT and Pocket Guide scores and observed a decrease in asthma severity. Although the program had no reductions in ED visits or Hospitalizations, participants reported (and verified through medical records) no ED visits or Hospitalizations in the previous year. School days missed due to asthma was unable to be tracked at the RAHS site.

Participants	Prescriptions delivered- location	Prescriptions delivered- pharmacy	Families receiving asthma education	Participants receiving asthma education
4	6	0	35	4

Increased asthma control		Decreased Severity	Reduction in:		
ACT score	Pocket Guide	ICD- 10 Code	ED visits	Hospitalizations	Missed school days
3	3	3	0	0	N/A

Bangor Health Center:

The Bangor Health Center Pilot site had 2 patients participate with the medication delivery project. No prescriptions were delivered home or to the center to be sent home with participants. The center is located within 1 mile of the local pharmacy (which does not deliver) with majority of patients passing this pharmacy for center appointments. While Bangor Health Center did not identify any of their current patients in which this program was/would be beneficial, they noted that they could see benefit for patients in the population that lack transportation options. Education was given to families of the patients that participated in the pilot project, with 3 family members receiving this education. Follow-up for control and severity was not available for this site. ED visits, Hospitalizations, and missed school days were not reduced at this site due to lack of history of these events for asthma related causes.

Participants	Prescriptions delivered- location	Prescriptions delivered- pharmacy	Families receiving asthma education	Participants receiving asthma education
2	0	0	3 (family members)	2

Increased asthma control		Decreased Severity	Reduction in:		
ACT score	Pocket Guide	ICD- 10 Code	ED visits	Hospitalizations	Missed school days
N/A	N/A	N/A	0	0	0

Sustainability & Effectiveness

Each site was asked to determine if they felt the program was sustainable and effective. The sites had opposing ideas for the effectiveness and sustainability of this project.

Quotes below reflect the answer to the question pertaining to effectiveness from each site:

> "I think the need for this delivery method is more limited & specific than immediately apparent. A majority of our families identified their preferred pharmacies, most of these pharmacies do not deliver. Families that were in need had students living in multi-home situations with poorer intra-family communication and transportation options… The ability to have medications delivered to the school and placed in the hands of the student helped immensely but was limited to a small discrete group of families in my school setting."

> "It was not effective for our patients during the implementation phase because medication delivery was not needed. However, it would be effective if we had a patient or family without transportation."

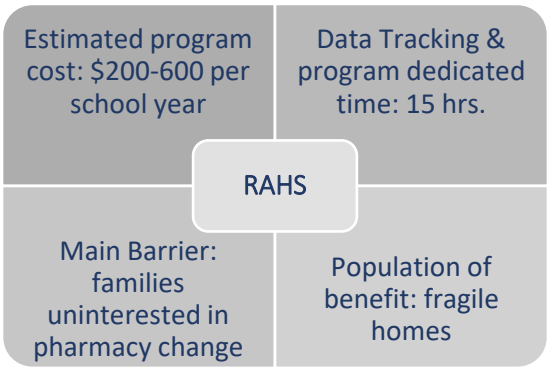
While the pilot sites had low numbers of participants, and sites did not have large needs for this type of service in their population, they stated that this type of service would be beneficial and that they do see a need for services in a small range of patients.

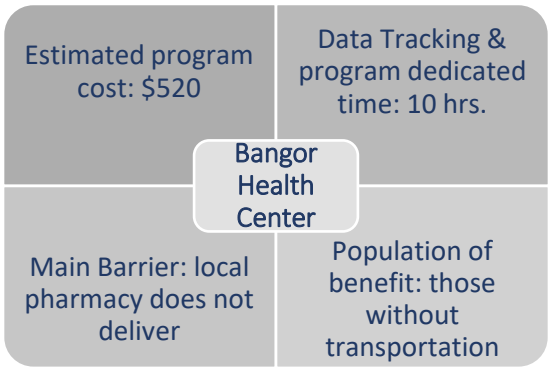
Quotes below reflect the answer to the question pertaining to sustainability from each site:

> "It is probably sustainable, but not practical for our small clinic. The clinician would likely have to drive to the pharmacy to get medications which may not be a good use of the clinicians' time…"

> "I think there will always be a need to assist a small group of students with medication access."

Pilot sites were also asked to identify barriers to sustainability and what might enhance program sustainability. Bangor Health Center identified issues with school policy as their barrier to medication delivery, which was not present with RAHS due to their site being integrated within a school health center. For school delivery in the Bangor Health Center program, parents would likely have to make a trip to the school to pick up the medication rather than the medication being taken home with the child. With this, a trip to the pharmacy to pick up the medication would be the same thing. Bangor Health Center also noted that it was difficult to implement the delivery of asthma medications when other medications were also not included in the model. RAHS identified aid in the form of funding to cover medication costs for patients without prescription coverage or those with high co-pays to enhance sustainability.





Evaluating Lessons Learned & Future Directions

While evaluating a program, it is important to note not only the benefits, but also lessons learned and areas of improvement.

From the pilot sites chosen, the following lessons learned were compiled:

- Issues with participant recruitment (N=6)
- Misunderstanding of health center's role in asthma assessment linked to access of care enhancement via AMDP
- Centers focused on immediate patient need/care rather than building of relationships, partners, and infrastructure needed for program effectiveness and sustainability
    - Proximity to pharmacy was assumed as having access to pharmacy and medications
    - Centers prioritized preference versus program infrastructure building and future benefit and enhanced patient care access
- Patients with Primary Care Physicians (PCP) being seen at the centers were excluded from program participation under assumption of "asthma managed by PCP"

- While the Americans with Disabilities Act allows for the carrying of medications that are not being administered on school properties, schools may still require permission to facilitate the exchange of regulated medication through their facility
    - Self-carry of medication rules differ among Michigan Schools and therefore is a potential limitation for implementation of a medication delivery model

From the pilot sites, the following strengths and improvements were identified:

- Populations of benefit
    - Sites had difficulties viewing a broad scope of benefit for more populations affected by asthma than immediately identifiable at-risk populations (i.e. fragile home environments, those without transportation/limited transportation)
- Asthma education was integrated into each pilot program
    - Education was shared with patient and caregivers
- One pilot site incorporated spirometry into asthma care standard
- Terminology improvement/clarification pertaining to dispensing facility:
    - Centers/schools do not become dispensing facility when medications are delivered, pharmacy remains dispensing facility

Actionable Process Improvement

Stakeholders from this project assembled via telephone conference to determine the actionable process improvement and the future of this program. Concerns surrounding pilot site implementation was a core focus of this discussion. It was decided that perhaps two issues may have arisen during implementation: (1) MDHHS and partners did not effectively communicate what was being asked of each site, or (2) the sites interpreted what was being asked of them differently creating the vast variations in implementation of the program. We also encountered issues with staffing and administrative turn-over among the pilot sites reducing consistency of implementation.

For actionable process improvement three items were suggested:
(1). Recruit additional pilot sites
(2). Modify the program
(3). Guidance toolkit for providers

Recruit Additional Pilot Sites:
While this seemed like an attractive idea, it was concluded that even if these evaluation results were applied, additional pilot sites would perform/implement this type of program in a similar way to the original sites therefore would most likely not produce additional or different results. Furthermore, with other pressing matters facing health centers administrations, including new grants dollars emphasizing mental health, adding this additional burden to staff seems doubtful.

Modify the Program:
This program was designed to optimize asthma education and minimize burden on providers. With modification of the program, it is probable that burden on providers would increase or program efficiencies would be lost. Therefore, modifying the program and conducting a re-pilot was deemed unfavorable.

Guidance Toolkit for Providers:
Creation of a toolkit specific to educational related topics surrounding asthma was suggested to modify this program and continue to keep burden on providers low. Structure of this toolkit and contents are yet to be determined, however suggested topics included: Background/introduction information, description of asthma medication delivery programs, strategies on how to implement, things to avoid, and educational materials.

Of the options, creating of a toolkit outlining this type of program and how to implement it was suggested as the actionable process improvement related to this project. The stakeholder group will continue to work collaboratively to create this toolkit and work to evaluate the effectiveness of this approach to asthma medication delivery.