

# Asthma disease management programs

## ▶ Intervention in brief

<b>System wide:</b>	<b>Asthma disease management programs</b> deploy clinical and non-clinical staff to work with patients to create action plans, provide disease and medication education, and support self-management. The goal is to improve patients' long-term self-management and quality of life,
<b>Strength of evidence</b>	 <p>While recent retrospective analyses yield strong results, outcomes vary widely in older meta-analyses and systematic reviews.</p> <p>Medium</p>
<b>Impact</b>	<ul style="list-style-type: none"> <li>• <b>Decreased cost:</b> 6.73:1 ROI; \$1,395 cost avoidance due to reductions in average annual morbidity episodes</li> <li>• <b>Decreased utilization (wide range):</b> Insignificant to 89% decreased ED visits and 34% decreased risk of ED visits; insignificant increase to 92% decreased hospital admissions and 50% decreased risk of hospital admission; insignificant to 59% fewer inpatient days; insignificant to 78% decreased outpatient visits</li> <li>• <b>Improved quality, clinical outcomes:</b> Insignificant to 83% improved symptoms; insignificant to 33% improved asthma-related quality of life; insignificant to 25% improved quality of life (weighted mean difference 0.25, standard mean difference 0.29); insignificant impact on FEV<sub>1</sub><sup>1</sup> and asthma attacks</li> <li>• <b>Increased access:</b> Not demonstrated</li> <li>• <b>Improved stakeholder satisfaction:</b> Not demonstrated</li> </ul>
<b>How to succeed</b>	<p>To build an effective asthma management program:</p> <ul style="list-style-type: none"> <li>• Provide patients with education on the basics of asthma including medications and triggers</li> <li>• Use collaborative action planning to promote patient engagement, especially for newly-diagnosed patients or those inexperienced in managing their disease</li> <li>• Incorporate asthma education in outpatient specialty care clinics (e.g., allergist clinics), not just primary care clinics, to extend reach</li> <li>• Direct pharmacists to provide asthma-specific patient education in the inpatient setting or following an acute visit to improve self-management (e.g., using chambers on inhalers, using peak flow meters, obtaining medication refills) and avoid acute care utilization</li> <li>• Consult asthma specialists when developing your program and for ongoing clinical decision support to ensure policies and decisions align with current best practices for asthma care</li> </ul> <p>To learn more about developing an evidence-based approach to addressing chronic diseases like asthma, check out How Providers Scale Disease-Agnostic Approaches to Patient Management webinar <a href="#">here</a>. Then, download our chronic disease management action plan template <a href="#">here</a>.</p>

1) Forced Expiratory Volume. FEV<sub>1</sub> is the maximum amount of air a person is able to exhale in one second and is used to measure degree of obstruction in patients with obstructive lung diseases.

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## ▶ Demonstrated impact

### Literature review summary

**Title:** Mobile Health Care Operations and Return on Investment in Predominantly Underserved Children with Asthma: The Breathmobile Program

**Publication:** Population Health Management

**Date:** 2013

**Type:** Retrospective analysis

**Study population:** 15,986 pediatric asthma patients who participated in any of four Southern California Breathmobile Programs between November 16, 1995 and December 31, 2010

**Major findings:** Asthma management through a mobile clinic staffed by asthma care specialists that travels primarily to low-income, inner-city schools resulted in a return on investment of 6.73:1 and \$1,395 cost avoidance per patient due to average annual reductions in morbidity episodes.

**Source:** Full article [here](#).

**Title:** Interventions to Improve Outcomes for Minority Adults with Asthma: A Systematic Review

**Publication:** Journal of General Internal Medicine

**Date:** 2012

**Type:** Systematic review

**Study population:** Primarily African-American, Latino, and Asian-American adults with asthma

**Major findings:** Asthma management programs resulted in:

- *Utilization:*
  - Decreased ED visits (16-59% compared to control, 22-89% compared to pre-intervention)
  - Mixed impact on hospitalizations (insignificant to 88% decrease compared to control and pre-intervention)
  - Mixed impact on hospital length of stay (insignificant to 59% fewer days)
  - Mixed impact on outpatient visits (0-78% decrease)
- *Quality outcomes:*
  - Mixed impact on symptoms (insignificant to 83% improvement)
  - Mixed impact on asthma-related quality of life (insignificant to 33% improvement) and quality of life (insignificant to 25% improvement)

**Source:** Full article [here](#).

**Title:** A Rapid Synthesis of The Evidence on Interventions Supporting Self-Management for People with Long-Term Conditions: PRISMS – Practical Systematic Review of Self-Management Support for Long-Term Conditions

**Publication:** Health Services and Delivery Research

**Date:** 2014

**Type:** Meta-analysis

**Study population:** Adult and pediatric patients (including infants) with asthma across 18 systematic reviews evaluating 217 randomized controlled trials taking place in 16 countries

**Major findings:** Asthma management programs were associated with:

- *Utilization:*
  - Mixed impact on risk of ED visit (insignificant increase to 0.66x the risk)
  - Mixed impact on risk of hospitalization (insignificant increase to 0.5x the risk)
- *Quality outcomes:*
  - Mixed impact on quality of life (insignificant to increased weighted mean difference of 0.25, standard mean difference of 0.29)
  - Insignificant impact on FEV1

**Source:** Full article [here](#).

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**Title:** Adaptation of an Asthma Management Program to a Small Clinic

**Publication:** American Journal of Managed Care

**Date:** 2017

**Type:** Retrospective analysis

**Study population:** 116 primarily Hispanic or African-American pediatric asthma patients from the Pediatric Allergy-Immunology Clinic at Harbor-UCLA Medical Center (HUMC) and the Harbor Medical Foundation in Torrance, California. Patients averaged 6.4 years old and were covered by Medi-Cal insurance.

**Major findings:** After one year of enrollment, the asthma management clinic was associated with decreased ED/urgent care visits (69%) and decreased hospitalizations (92%) compared to the year prior to enrollment.

**Source:** Full article [here](#).

**Title:** Community-Based Asthma Education

**Publication:** American Journal of Managed Care

**Date:** 2017

**Type:** Retrospective analysis

**Study population:** 574 patients aged 4-77 years (mean of 30 years) with asthma who elected to participate in community hospital-based asthma education at Ellis Hospital in Schenectady, New York between April 2011 and December 2015. Most patients were female and covered by Medicaid or Medicare.

**Major findings:** After one year, asthma education was associated with decreased ED visits (64%) and decreased hospital admissions (63%).

**Source:** Full article [here](#).

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## Appendix

- Morphey T, et al., “Mobile Health Care Operations and Return on Investment in Predominantly Underserved Children with Asthma,” *Population Health Management*, 16, no. 4 (2013), <https://www.liebertpub.com/doi/full/10.1089/pop.2012.0060>.
- Press VG, et al., “Interventions to Improve Outcomes for Minority Adults with Asthma,” *Journal of General Internal Medicine*, 27, no. 8 (2012): 1001-1015, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3403146/>.
- Taylor SJC, et al., “A Rapid Synthesis of the Evidence on Interventions Supporting Self-Management for People with Long-Term Conditions,” *Health Services and Delivery Research*, no. 2.53 (2014), <https://www.ncbi.nlm.nih.gov/books/NBK263827/>.
- Kwong KY, et al., “Adaptation of an Asthma Management Program to a Small Clinic,” *American Journal of Managed Care*, (2017), <https://www.ajmc.com/journals/issue/2017/2017-vol23-n7/adaptation-of-an-asthma-management-program-to-a-small-clinic?p=4>.
- Rau-Murthy R, et al., “Community-Based Asthma Education,” *American Journal of Managed Care*, (2017), <https://www.ajmc.com/journals/issue/2017/2017-vol23-n2/community-based-asthma-education>.