High Quality Care for Children with Asthma: The Medical Home Foundation

By Jennifer Lail, MD, FAAP and John Meurer, MD, MBA, FAAP

BACKGROUND

The American Academy of Pediatrics (AAP) developed the medical home model for delivering primary care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate and culturally effective to every child and youth.[1] Providers and practices that function as medical homes address preventive, acute and chronic care from birth through transition to adulthood. A medical home model of care strives to facilitate an integrated health system with an interdisciplinary team of primary care physicians, specialists and sub-specialists, hospitals and healthcare facilities, public health agencies and the community, all working closely with patients and families.

In 2007, the AAP partnered with the American Academy of Family Physicians (AAFP), American College of Physicians (ACP) and the American Osteopathic Association (AOA) to publish the *Joint Principles of the Patient-Centered Medical Home.*[2] This consensus statement describes seven principles of a medical home, which include personal physician, physician-directed medical practice, whole-person orientation, coordinated care, quality and safety, enhanced access and appropriate payment. Childhood asthma is a serious and chronic condition that affects one in seven U.S. children and their families. Receiving care within the context of a medical home has the potential to improve care for children and youth with asthma. The medical home model has demonstrated a positive relationship between the medical home and desired outcomes, including better health status, timeliness of care, family-centeredness and improved family functioning.[3]

In 2007, the National Asthma Education and Prevention Program (NAEPP) coordinated by the National Heart, Lung and Blood Institute (NHLBI) released the latest panel report, the *Expert Panel Report 3 (EPR-3): Guidelines for the Diagnosis and Management of Asthma.* These clinical guidelines and recommendations may have the most impact on children's well-being if they are executed within the patient's medical home.

A MEDICAL HOME FRAMEWORK FOR ASTHMA CARE

The seven joint principles of the patient-centered medical home provide a framework for implementing these national asthma guidelines.

1. A **personal physician** provides continuity of care in a partnership, eg, scheduling routine follow-up care and monitoring use of beta2-agonist medications.
2. A **physician-directed medical practice** coordinates family-centered, high-quality, accessible and affordable services for children with asthma.
3. The practice has a **whole person orientation** providing comprehensive, compassionate, culturally-effective care in a family-centered partnership. This holistic approach includes control of environmental triggers such as allergens and irritants—especially tobacco smoke, and treats or prevents co-morbid conditions that affect asthma. It also promotes physical fitness for children with asthma.
4. **Care is coordinated** and integrated across the community-based system and facilitated by information technology including asthma registries. Care coordination includes referrals to specialty care, if needed, and eventual transitions to adult care. A medical home with electronic health records improves performance and outcomes measurement and accountability.

5. **Quality and safety** are hallmarks of patient-centered and evidence-based asthma care. NAEPP provides guidelines on establishing the asthma diagnosis, providing asthma education on patient self-management, prescribing medications, especially inhaled corticosteroids for persistent asthma, using a stepwise treatment approach for patients of different ages, and developing a written asthma management plan to help families.[4] The AAP Chapter Alliance for Quality Improvement (CAQI), and now the Medical Home Chapter Champions Program on Asthma, offer state and local resources for practices. The AAP Education in Quality Improvement for Pediatric Practice (EQIPP) online courses—for both medical home and for asthma—provide Continuing Medical Education (CME) credits and Maintenance of Certification (MOC) Part 4 support.
6. **Enhanced access** to care includes pediatrician availability to assess, classify and monitor asthma severity and control. It also reduces disparities in processes and outcomes in asthma care.
7. **Appropriate payment** recognizes the added value provided to patients with asthma who receive care in a medical home as defined above.

CLINICAL EXAMPLES—ASTHMA CARE IN A MEDICAL HOME

The aforementioned medical home principles can be further illustrated by the following clinical examples of asthma management:

1. **Personal physician**: During urgent care hours, 7-year old, Jackson, comes in to see your on-call partner with a chief complaint of cough. Since he is listed in your registry of Children with Special Health Care Needs (CSHCN), your scheduling staff and care providers are aware that he is a known asthmatic and had a gastric duplication repaired at birth, therefore, he needs and is given a longer appointment. He has just spent the weekend in his paternal grandmother's home; mom sent his "puffers" but they were not used during his visit. Your colleague accesses his problem list and current asthma plan from his medical record, stabilizes him and arranges for him to return to see you the next day for follow-up, sending an email to you and your care coordinator.[5]

2. **Physician-directed medical practice team**: Having recently completed his kindergarten check-up, you know that Jackson's parents are not together and his dad is only peripherally and episodically involved in his care. His mother, maternal grandmother and uncle are his usual care providers. You and your care coordinator have worked with a Medicaid case manager to assist in the home by providing education about medicines and compliance.

3. **Whole-person orientation**: Prior to receiving care in your medical home system, Jackson was hospitalized twice for asthma exacerbations, once with a complicating pneumonia. You discovered that he sleeps on the floor on a very old mattress and the family claims that they do have "lots of" cockroaches in the home. You and your care coordinator have arranged for dust-mite covers for his bedding and have contacted his school's social worker to assure his medications are given at school, when necessary. You also updated his asthma plan at his recent check-up.

4. **Care is coordinated and integrated**: After Jackson's second hospitalization, he had quantitative IGE allergy testing with you and saw the pulmonologist to consider what role GER might play in his exacerbations. Your review of his pulmonology consult in his medical record confirms your recollection that studies for reflux were negative, but his allergy testing showed marked reactivity to cockroaches and dust mites. You place a reminder on his chart to arrange asthma education for Jackson's father when he is stable; you plan to do spirometry to assess control at that visit.

5. **Quality and safety**: Using NHLBI guidelines, you and your partner move Jackson's medications up to the "yellow zone" in his asthma plan and arrange for him to return for his flu shot and follow-up in the two weeks. You remind his uncle of the importance of using his controller medicines daily. His uncle says "he does much better with his nebulizer when he's sick", but they have lost their tubing. You replace his tubing and mask and adapt his asthma plan for nebulizer use until his return visit. An electronic reminder for his flu shot is placed in his chart, along with a reminder that his father needs an asthma education session and an asthma care plan for his home.

6. **Enhanced access**: Jackson arrives with his uncle at 1 pm on Sunday to be seen during urgent care hours. A consent by proxy is on the chart which permits his uncle to seek care for him. A "same-day" appointment is available and scheduled for follow-up by you the next day. An ED visit is unnecessary.

7. **Payment**: Your partner charges an "after-hours" code (code 99051) for Sunday care and captures charges for oximetry (94760) and nebulization (94640), and nebulizer tubing (A7003). Your visit the following day is moderately complex (99214), sorting out the exacerbation and assuring that Jackson is clinically improved. Your nurse reviews inhaler use with his local family (code 94664) and makes an appointment in 2 weeks for spirometry to assess control (94060) and for this father's asthma education visit.

SUMMARY

As many as 10.2 million children (or 1 in 7) had lifetime asthma in 2008 and almost 7 million children (1 in 11) had current asthma. Because asthma is the single most common childhood chronic condition and the second most prevalent childhood condition,[6] the medical home model of care should be the foundation of care for all children, especially children with chronic conditions like asthma. For a child with asthma, care received within the context of medical home that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate and culturally effective can be the difference between control and the emergency room.

AAP MEDICAL HOME AND ASTHMA PROJECT

In 2009, the AAP established the Medical Home Chapter Champions Program on Asthma (MHCCPA) with support from the Merck Childhood Asthma Network, Inc. (MCAN). In 2014, the program was expanded to include Allergy and Anaphylaxis with support from the Allergy and Asthma Network Mothers of Asthmatics (AANMA). The goals of the expanded two-year program are to:

1. Support the chapter champions' network via the coordination and implementation of educational and quality improvement initiatives as well as the provision of ongoing technical assistance to same;
2. Provide specific programmatic activities centered around enhanced communication, coordination and collaboration between patients and their families, pediatric primary care providers and subspecialists; and
3. Support policy and advocacy efforts at the local, state and national levels.

For more information about the *Medical Home Chapter Champions Program on Asthma, Allergy and Anaphylaxis* contact Nkem Chineme, MPH, Program Manager, American Academy of Pediatrics, at 800/433-9016, ext. 4342 or nchineme@aap.org.

[1] American Academy of Pediatrics; Medical Home Initiatives for Children with Special Needs Project Advisory Committee. The medical home. *Pediatrics*, 2002; 110(1), 184-186.

[2] Patient-Centered Primary Care Collaborative (AAFP, AAP, ACP and AOA). Joint principles of patient-centered medical home, 2007.

[3] Homer C., Perrin J., et al. A Review of the evidence for the medical home for children with special health care needs. *Pediatrics*, 2008 (122), 922-937.
[4] US DHHS NIH NHLBI NAEPP. Guidelines for the diagnosis and management of asthma, 2007.
[5] CDC. Key clinical activities for quality asthma care. *MMWR*, March 28, 2003.
[6] Markus A., Lyon M., et al. Changing policy: the elements for improving childhood asthma outcomes, 2010.