



Approaches to Asthma Management:

BY CAROL MCPHILLIPS-TANGUM
AND CAROLINE M. ERCEG

ASTHMA IS A CHRONIC DISEASE that affects millions of people in the United States and disproportionately impacts children, racial and ethnic minorities, low-income, and inner-city populations. According to the National Center for Health Statistics, 31.3 million Americans surveyed in 2001 were diagnosed with asthma at some point in their life and 20.3 million people had asthma at the time of the survey.

Treatment for asthma and its associated costs are a substantial burden on the health care system. In 2002, asthma accounted for more than 12 million physician office visits, 1.9 million emergency department (ED) visits, and approximately 484,000 asthma-related hospitalizations. Asthma is the most common cause of childhood hospitalization among children ages 3 to 12 years, and causes approximately 14 million missed school days and 14.5 million missed work days each year. The National Heart, Lung and Blood Institute (NHLBI) estimated that the nation spent over \$11 billion on asthma-related health care expenditures in 2004.

An Assessment of Health Insurance Plans

Fortunately, many complications from asthma are avoidable by following evidence-based guidelines that recommend assessment and monitoring of care, appropriate medication, patient education, and control of risk factors, such as reducing exposure to allergens and irritants. In 2001, the *Taking on Asthma* initiative was launched by America's Health Insurance Plans (AHIP) to support members' efforts to improve the health and quality of life for children and adults with asthma. As part of this long-term initiative, which is partially supported through a cooperative agreement with the United States Environmental Protection Agency, AHIP conducted an assessment of health insurance plans' approaches to asthma management in the summer of 2004.

The purpose of AHIP's assessment was to capture the latest information on asthma management programs of AHIP member health insurance plans, examine the findings in light of the evidence-based guidelines of effective asthma care and management, and identify new opportunities for integrating guidelines and effective interventions into asthma management programs.

A total of 36 questions were developed by AHIP to collect information from a sample of its member health insurance plans. The final stratified sample included 142 commercial and 33 Medicaid plans. Of the 175 plans in the sample, 17 plans (10 percent) refused to participate, 21 plans (12 percent) were deemed ineligible (either no asthma management program offered or no commercial or Medicaid population) and 59 plans (34 percent) did not respond. Of the 154 plans eligible to participate in the assessment, 78 plans (51 percent) responded to all or a majority of the questions. Fifty-nine of the respondent plans were commercial health plans and 19 were Medicaid plans. When weighted by self-reported enrollment, these 78 plans collectively represent 89,079,749 million covered lives. All findings were weighted by enrollment to best reflect the experiences of plan enrollees.

Enrollee Identification and Stratification

Health insurance plans reported using a variety of data sources to identify enrollees with asthma, stratify enrollees based on severity, and deliver appropriate asthma interventions. Nearly all plans (95.6 percent) reported using more than one data source to identify and stratify enrollees with asthma. The two most commonly used sources are claims or encounter data (99.1 percent) and pharmacy data (94.6 percent). Other sources used to identify and stratify enrollees with asthma include referrals from case/care management (88.3 percent), provider referrals (85.2 percent), enrollee self-report (78.4 percent), predictive modeling software (66.8 percent), and daily hospital census reports (50.8 percent). Although commercial and Medicaid plans are equally likely to use claims or encounter data, referrals from case/care

management, and daily hospital census reports, commercial plans are more likely to use pharmacy data (95.9 percent vs. 62.5 percent, respectively), provider referral (86.4 percent vs. 55.1 percent), enrollee self-report (79.7 percent vs. 47.7 percent), and predictive modeling software (69 percent vs. 14.7 percent).

Enrollee Interventions

Patient education interventions related to both the prevention and treatment of asthma are a fundamental part of plans' asthma management programs, and are designed to help enrollees manage their illness through the coordinated care of physicians, disease managers, case managers, and home visit nurses. A wide range of enrollee interventions are included in the programs of the plans that participated in the assessment. Patient education materials and messages are commonly disseminated to all enrollees with asthma, while case management and proactive telephone calls to enrollees with asthma are typically reserved for enrollees in certain high risk categories (see table one). In addition, 80 percent of plans indicated that they offer smoking cessation support/services to enrollees, and 84.5 percent of those plans indicated that such services are integrated into their asthma management program.

The NHLBI guidelines for asthma management recommend the use of environmental control measures to avoid or eliminate factors that precipitate asthma symptoms or exacerbations. Plans reported using a variety of environmental management strategies to decrease the frequency and severity of asthma. Environmental management was described in the assessment as efforts to mediate indoor asthma triggers such as dust mites, roaches, pets, mold, and secondhand smoke. Twenty-five percent of plans reported that environmental management strategies are incorporated into all asthma management interventions, 67.4 percent reported that such strategies are incorporated into some asthma interventions, and 7.6 percent reported not incorporating environmental management strategies. The most likely types of enrollee interventions to include information about environmental management are printed educational materials (100 percent), Website information (95.4 percent), proactive phone calls to enrollees with asthma (84 percent), and nurse advice lines (80 percent).

Plans noted numerous challenges or barriers that limit their ability to incorporate environmental management strategies into their asthma management programs. The most frequently reported barriers were related to resources, such as inadequate staff, funding, and competing priorities—70 percent; systems barriers, such as poor data collection, reporting and record maintenance—48.4 percent; inability to track and measure environmental intervention effectiveness—41.1 percent; lack of

TABLE 1. Interventions Offered by Health Insurance Plans to Enrollees with Asthma: 2004 Assessment of Health Insurance Plans' Approaches to Asthma Management

Asthma Intervention	Offered to all enrollees with asthma (%)	Offered only to enrollees in certain risk categories (%)
Skills training for enrollees/families (e.g., educational classes, group visits)	10.7	35.1
Printed educational messages (e.g., newsletter articles, flyers, brochures)	84.2	8.8
Tailored mailings to enrollees with asthma (e.g., customized letters, health tips designed specifically for enrollees' needs)	29.8	63.2
Proactive calls to enrollees with asthma	2.6	82.4
Reminder program (e.g., medication compliance, immunizations)	23.4	31.6
Case management	3.0	82.5
Web site information and/or tools	84.1	6.9
Home visits	1.7	53.2
Nurse advice line	65.9	19.0
Follow-up contact after hospitalizations/ER visits	43.7	40.9
Asthma monitoring/management tools (e.g., peak flow meters, asthma management plans)	36.4	45.1
Coverage of environmental management tools (e.g., mattress covers, roach eradication systems, air purifiers)	17.8	6.2
Other	3.5	0.2

demonstrated return-on-investment (ROI) for environmental interventions—36.3 percent; lack of purchaser demand—33.7 percent; and lack of enrollee demand—32 percent.

Plans reported offering asthma interventions specifically designed to be culturally and linguistically appropriate. The vast majority of plans (84.9 percent) provide enrollees with access to translation services, and 69.8 percent provide case managers and/or disease management staff with training in cultural sensitivity or multi-linguistic skills. All Medicaid plans (100 percent) and the majority of commercial plans (60.7 percent) reported providing printed information in multiple languages to enrollees with asthma. Similarly, nearly all Medicaid plans (98.3 percent) and the majority of commercial plans (64.5 percent) assist enrollees in identifying network providers fluent in multiple languages. However, less than a quarter of Medicaid plans (23.4 percent) and very few commercial plans (6.3 percent) use specialized outreach programs for minority populations.

Despite the plans' substantial resources devoted to patient education interventions, almost 80 percent of plans cited health literacy—the capacity to understand basic health information needed to make health decisions—as a factor impacting their ability to encourage adherence to recommendations included in asthma management programs. Other factors cited by a majority of the plans include: home environmental factors (68.4 percent);

ability of the enrollee to read, write, and speak in English (64.5 percent); potential financial/economic barriers of enrollees (58 percent); and cultural or religious beliefs, customs, or behaviors that impact use of health care services (55.3 percent).

Additional research may be needed to identify the most effective interventions for plans to use to help enrollees understand and adhere to their asthma treatment regimen. This research would be most valuable if it yields specific recommendations for tailored interventions for the high-risk groups mentioned earlier.

Provider Interventions

The results of the 2004 assessment indicate that health insurance plans are using evidence-based practice guidelines to define asthma management programs. Nearly all plans reported adopting or modifying the *National Asthma Education and Prevention Program's Expert Panel Report 2 (EPR-2 and EPR-Update 2002): Guidelines for the Diagnosis and Management of Asthma* coordinated by NHLBI. The vast majority of health insurance plans that responded to the assessment (95.8 percent) reported having an evidence-based practice guideline for asthma management. Most commonly, plans reported using the NHLBI guidelines (66.1 percent) or a modification of the NHLBI guidelines (25.5 percent). Plan activity in this area is consistent with research documenting that adherence to clinical guidelines for asthma is

TABLE 2. Provider-Based Interventions Used by Health Insurance Plans to Encourage Management of Enrollees with Asthma: 2004 Assessment of Health Insurance Plans' Approaches to Asthma Management

Provider Intervention	All plans (%)	Commercial plans (%)	Medicaid plans (%)
Distribute evidence-based practice guidelines regarding asthma management	94.4	95.4	68.8
Disseminate educational materials for providers to use with patients who have asthma	56.4	56.3	59.2
Provide assessment tools for providers to use with patients who have asthma	28.2	27.5	47.9
Provide asthma action plan templates to providers for use with patients who have asthma	64.3	65.3	38.2
Offer specialized training for providers and/or their office staff about asthma (e.g., CME)	29.4	29.5	26.7
Offer feedback to providers regarding their patients with asthma (e.g., provider profiling)	81.3	82.5	48.6
Conduct medical chart review	15.0	14.2	36.4
Offer information technology tools to providers to help manage patients with asthma (e.g., disease registries, automated decision support tools, call-back systems, reminder programs)	20.8	21.5	1.4
Offer financial and non-financial incentives to providers who meet selected quality targets	22.9	23.1	17.5
Facilitate communication between providers and other care team members (e.g., case managers, disease managers, home visit nurses)	45.0	45.0	42.7
Encourage consultation with or referral to asthma specialists	27.9	26.6	60.2
Encourage referral to smoking cessation services	50.9	50.9	51.7
Reimburse for Internet visits	6.6	6.8	0.0

associated with decreased asthma-related hospitalizations, fewer ED visits, reduced exposure to allergens and irritants, and decreased asthma costs.

Plans reported using numerous provider-focused interventions designed to encourage and support optimal adherence to practice guidelines (see table two). The most commonly used provider interventions include distribution of evidence-based practice guidelines (94.4 percent), providing feedback about patients with asthma (81.3 percent), and providing asthma action plan templates for providers to use with patients who have asthma (64.3 percent)—all of which are supported by the EPR-2 guidelines.

Additionally, plans reported using several provider interventions that incorporate information about environmental management of asthma, such as educational materials for patients (70.9 percent), evidence-based practice guidelines (67.2 percent), assessment tools (40.1 percent), and asthma action plans (35.6 percent). Less commonly, information about environmental management is included in provider feedback (26.8 percent), in-

formation technology tools (25.7 percent), referrals to smoking cessation services (24.9 percent), and as part of the communication between providers and other care team members (18.5 percent) or asthma specialists (16.4 percent).

Plans reported that a variety of factors may negatively impact a provider's ability to follow asthma management guidelines. Resource limitations was the most frequently cited factor (76.7%), followed by patient adherence issues (72.7%), and inability of providers to follow up with patients who have asthma (49.6%). Other factors cited by plans included provider disagreement with practice guidelines (17.1%), lack of timely data from providers (12.3%), and malpractice or liability concerns (3.6%).

According to a recent study published in the *Journal of the American Academy of Allergy, Asthma and Immunology*, researchers concluded that "improving physician awareness about appropriate methods to address environmental triggers and encouraging appropriate education about them may improve the effectiveness of parents' actions." The study noted it is vital to

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educate patients and their families about effective environmental control measures in a tailored way that addresses patient's specific environmental triggers. The study suggests that additional tools are needed to help clinicians distinguish which measures are most effective. These findings highlight an important opportunity for plans to work in partnership with physicians and other health care stakeholders to identify and apply patient education approaches that are proven to be practical and effective.

Disease Management

To assess the extent to which plans offer asthma disease management (DM) programs that meet the specific definition of DM programs set forth by the Disease Management Association of America (DMAA), plans were asked to review the DMAA definition and describe their asthma DM program accordingly (see table three). Overall, 92 percent of plans reported having an asthma DM program with all or some of the components of a full service program. Specifically, 77.9 percent of plans reported having an asthma DM program with all components of a full service

program and an additional 14.2 percent reported having a program with at least some of the components. The average age of asthma DM programs reported by commercial plans was 4.9 years and the average age reported by Medicaid plans was 2.5 years. Plans reported that the most common methods used to enroll people into asthma DM programs included automatic enrollment with the ability to opt-out of the program (86.7 percent), case/care management referral (81.6 percent), physician referral (81.3 percent), and self-referral (67.4 percent).

Most plans reported that services performed as part of the asthma DM program are performed in-house or through a combination of in-house and a DM vendor (43.8 percent, 33.2 percent, respectively). Among plans that contract with a DM vendor, most plans (95.5 percent) use the DM vendor to communicate with enrollees and 70 percent use the vendor for case management. Slightly more than half of plans that use a DM vendor (56.9 percent) ask the vendor to handle recruitment of enrollees into the program, and 24.6 percent ask the vendor to perform predictive modeling.

TABLE 3. Prevalence of Full Service Asthma Disease Management Programs: 2004 Assessment of Health Insurance Plans' Approaches to Asthma Management

	All plans (%)	Commercial plans (%)	Medicaid plans (%)
Plan has a program with all the components recommended by DMAA	77.9	79.8	29.2
Plan has a program with some of the components recommended by DMAA	14.2	12.0	70.8
Program available to all enrollees with asthma	69.0	67.9	94.0
Program available only to enrollees with asthma in certain risk categories	31.0	32.1	6.0
<p>A formal disease management program is a system of coordinated healthcare interventions and communications for populations with conditions in which patient self-care efforts are significant. A full service disease management program includes all of the following components:</p> <ul style="list-style-type: none"> ▶ Population identification processes ▶ Evidence-based practice guidelines ▶ Collaborative practice models to include physician and support-service providers ▶ Patient self-management education (may include primary prevention, behavior modification programs, and compliance/surveillance) ▶ Process and outcomes measurement, evaluation, and management ▶ Routine reporting/feedback loop (may include communication with patient, physician, health plan and ancillary providers, and practice profiling) 			
<p>Source: Disease Management Association of America (DMAA) definition, www.dmaa.org</p>			

TABLE 4. Outcomes of Asthma Management Programs Tracked by Health Insurance Plans: 2004 Assessment of Health Insurance Plans' Approaches to Asthma Management

Outcome	All plans (%)	Commercial plans (%)	Medicaid plans (%)
Overall costs	81.8	82.5	64.3
ER utilization	96.1	96.1	96.9
Inpatient utilization	96.3	96.1	100.0
Outpatient utilization	82.6	84.5	35.4
Pharmacy cost/utilization	94.2	95.2	69.7
Enrollee satisfaction	77.6	79.7	25.3
Provider satisfaction	33.0	33.2	27.5
Employer satisfaction	22.0	22.6	6.1
Return-on-investment	34.3	34.6	26.4
Clinical outcome measures (e.g., peak flow meter results)	30.5	31.1	16.6
Functional status assessments	23.1	23.5	12.5
Lost work days	48.4	49.9	11.1
Lost school days	33.6	34.2	17.3
Quality measures (e.g., HEDIS®, FACCT)	82.6	82.0	98.3

Outcomes Measurement


The majority of health insurance plans that participated in the assessment (67.5 percent) reported having mechanisms in place to track hospitalizations, ED visits, and/or pharmacy claims data in real time to measure the impact of asthma management interventions. Slightly more than half of all plans (51.2 percent) reported having an asthma registry to monitor asthma management. Types of outcomes measured by plans include inpatient utilization (96.3 percent), ED utilization (96.1 percent), and pharmacy costs/utilization (94.2 percent) (see table four). More than half of all plans (60.5 percent) reported performing a ROI analysis or similar cost-benefit analysis on asthma management interventions, and commercial plans were more likely to report doing so than Medicaid plans (61.4 percent vs 36.6 percent, respectively). Less than one percent of plans reported performing any type of ROI analysis specifically on environmental management strategies.

Most plans use claims data (99.8 percent) and pharmacy data (98.6 percent) to measure the impact of asthma management programs. Enrollee feedback is also used by 85.4 percent of commercial plans and 23.7 percent of Medicaid plans. Provider feedback is used by 36.6 percent of all plans and chart review is used by 15 percent. Plans cited their perspective on the principal benefits resulting from their asthma management programs and the top three benefits were lower health care costs/utilization (88.6 percent), improved functional status of enrollees (81.5 percent), and reduced morbidity and mortality (42.2 percent).

Improvement Opportunities Exist

There are additional opportunities for plans to enhance the qual-

ity and effectiveness of the asthma management programs they offer to enrollees. Plans are beginning to use technology such as predictive modeling to identify enrollees for asthma management well before requiring care in an emergency department or hospital. Plans are also using internal data system capabilities to develop programs that reward physicians based on quality of care. Almost a quarter (22.9 percent) of plans reported offering financial and non-financial incentives to providers who meet selected quality targets. Rewarding quality performance programs will heighten accountability to accept guideline-endorsed approaches, and encourage physicians to engage and follow-up with their patients in new ways.

The results of this assessment indicate that health insurance plans are using evidence-based practice guidelines to define asthma DM programs and incorporate many of the recommended components. As new health information technologies emerge and effective provider and enrollee interventions are identified, additional exciting opportunities will emerge for health insurance plans to continue to improve the quality of care for people with asthma. Through the *Taking on Asthma* initiative, AHIP supports plans' efforts to improve care by providing a variety of resources and grant opportunities for member organizations (www.takingonasthma.org). 

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Carol McPhillips-Tangum, of CMT Consulting is a consultant to AHIP and **Caroline Erceg**, is director, medical affairs at AHIP.