

Guidelines for Collaboration Among Physicians, Pharmacists, and Managed Care Organizations to Improve Asthma Outcomes

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New Ideas, New Tools, and New Collaborations Among Managed Care, Physicians, and Pharmacy to Optimize Value in Asthma Management

Overview

Optimum asthma control in the future will rely on managed care organization pharmacy benefit managers working with primary care physicians using new technology to strengthen patient/physician/pharmacist relationships, maximize the group practice model, and improve asthma diagnosis, treatment, and monitoring in accordance with current National Asthma Education and Prevention Program (NAEPP) guidelines.¹

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Intended Audience

The intended audience for this activity consists of medical directors, pharmacy directors, pharmacy benefit managers, and other managed care professionals who are involved with the treatment of patients with asthma.

Educational Objectives

After completing this article, participants should be able to:

- Discuss the current management of asthma, including guideline recommendations and emerging treatments
- Explore current asthma control rates and the importance of monitoring asthma severity and control
- Examine managed care implications of asthma treatment, including medical costs and resource utilization
- Identify disease management opportunities to improve the clinical and economic outcomes of asthma
- Describe how medicine and pharmacy can collaborate to improve healthcare delivery and asthma treatment

Type of Activity: Knowledge

Fee: There is no fee for this activity.

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The overall prevalence of asthma in adults and children in the United States has increased from 20.3 million people in 2001 to 25.7 million in 2010.² Asthma prevalence increased among all subgroups, with significant increases occurring among black and Hispanic populations from 2001 to 2010 (from 3.2% to 11.9% and 3.2% to 7.2%, respectively).² Underserved populations also had a significant increase in the prevalence of asthma at a rate of 11.2% among persons with family income below 100% of the federal poverty level.²

One recent study found that an estimated 5% to 10% of Americans with asthma experience severe disease, half of whom have severe disease that remains uncontrolled.³ Much of the incurred costs of asthma care in the United States are derived from patients with severe and uncontrolled disease (these patients are characterized by frequent exacerbations, emergency department [ED] and hospital visits, and reliance on multiple medications). Patients with severe uncontrolled asthma represent 2.5% to 5% of all patients with asthma, yet patients with severe uncontrolled asthma account for \$21 billion, or 37.5%, of the \$56 billion of total asthma-related direct costs.³

Retrospective claims research indicates that approximately half of asthma-related direct costs are incurred by patients with severe asthma. The estimated annual per patient direct costs of severe, uncontrolled asthma are \$16,154 to \$32,308.³

Three common obstacles to optimal control of asthma in relationship to pharmacy benefit managers (PBMs) and the point of access to medications are:

- Failure to use evidence-based guidelines to direct therapy
- Inadequate use of controller therapy due to cost, low health literacy, and lack of an understandable asthma action plan

- Lack of understanding of the seriousness and level of control of the disease

We present case studies of these obstacles and discuss how cooperative implementation of the National Asthma Education and Prevention Program (NAEPP) 2007 guidelines and practical solutions to the obstacles described above will help patients achieve better control.¹ We describe ways to identify and overcome these barriers to good asthma care, use patient examples to demonstrate cooperative efforts that optimize asthma management in a managed care setting, and explain the need to expand these efforts.

Programs that cooperatively incentivize physicians, patients, pharmacists, and managed care organizations (MCOs) will achieve the level of care that is needed to improve the quality of care and decrease the cost of management in difficult-to-control asthma. These programs should be based on the NAEPP 2007 Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3),¹ address health literacy related to asthma management,⁴ focus on patient adherence to medication regimens,⁵ and establish an asthma report card for the patient and physician that includes a measurement of the patient's asthma impairment and risk domains.⁶ Furthermore, prescription data can be used by the community pharmacist to promote appropriate prescribing, facilitate adherence, and perhaps uncover undiagnosed asthma. Improved communication among patients, providers, PBMs, and community pharmacists will drive better asthma outcomes and reduce direct and indirect healthcare costs.⁷ Advances in our understanding of difficult-to-control asthma phenotypes^{8,9} and their pathophysiology have fueled the development of therapies that control asthma symptoms and prevent exacerbations. The prevalence and economic burden of asthma continue to rise, which

underscores the need to fully utilize available tools in innovative ways to maximize the control of this difficult, yet utterly manageable, disease state.

Overcoming Obstacles to Asthma Management

Obstacle #1: Lack of identification of the seriousness and level of asthma control.

Case Study: JA

I recently went to the pediatrics clinic to evaluate JA, a young woman aged 17 years. She was 13 weeks pregnant and a high-risk asthmatic with previous ED visits and hospitalizations. Her asthma had been well controlled throughout the previous year when she received care at the University of Wisconsin, across from my medical center. She had been under the care of an outstanding university physician, and he and she were working well together. She had been virtually asymptomatic; yet here she was 2 breaths away from an ED visit. She was refusing corticosteroids because of a conversation with her community pharmacist about the dangers of corticosteroid medication and their effects on the fetus.

Due to inadequate information and communication, despite previous environmental control and aggressive pharmacologic management, this patient had experienced a common asthma exacerbation after becoming pregnant and stopping her long-term asthma control medications. The pharmacist was concerned about in utero corticosteroid exposure and low birth weight. However, the effects of uncontrolled asthma carry a much greater risk of harm than the common adverse effects of oral steroids.^{1,10} A severe exacerbation requiring multiple emergency medications and possible intubation can result in the loss of the fetus, especially at this early stage of pregnancy.

Case Study 1: Discussion

Recognizing asthma as a variable disease that requires frequent monitoring, the NAEPP guidelines introduce the concepts of impairment and risk. Impairment is roughly equivalent to current symptoms and includes the degree to which asthma symptoms interfere with activities, work, or sleep; increase frequency of reliever medication use; and exert negative effects on quality of life (QOL).¹ Risk is an estimation of the likelihood of long-term complications such as future exacerbations, hospitalizations, progressive loss of lung function, or cumulative adverse effects of medications.¹

It is expected that patients with severe asthma will experience frequent exacerbations. One study found that over 50% of patients with severe asthma, under the appropriate care of an allergist or pulmonologist, required a burst of oral steroids 3 months prior to entering the study and 30% to 40% of patients with mild to moderate asthma required an unscheduled office visit.¹¹ Thus, once a patient's asthma is brought under control, which often requires several office visits every 2 to 6 weeks, follow-up visits should occur regularly. Patients with controlled asthma should be seen by a physician at least twice a year in order to maintain control.¹

In this case study, the patient's status had changed significantly (pregnancy), and although she had not yet noticed any significant impairment, she was at substantial risk of an exacerbation that could have threatened her life, pregnancy, or both. A thorough, appropriate risk assessment was missing. Factors that can contribute to a loss of asthma control include poor adherence to treatment recommendations, poor lung function, depression, stress, obesity, low health literacy, and cigarette smoking.¹ Patients with moderate to severe asthma can show significant variability in disease severity in as little as a 12-week period, and those with "mild" asthma can have very severe exacerbations.^{1,12} The impairment domain can be evaluated by the Asthma Control Test and lung function testing, but the risk domain is best approximated by the history of exacerbations. It must be realized that determining prior exacerbations by patient history may be inaccurate.¹³ However, a more accurate record of recent asthma exacerbations may be derived from pharmacy and claims databases. Since a history of exacerbations predicts future exacerbations,¹ pharmacy refill data and claims data should be available to the clinician and should be part of the clinical assessment of patients with uncontrolled asthma.¹⁴

Predictive modeling and administrative claims data are commonly used by MCOs and PBMs to assess the quality of care provided to their members. However, being retrospective tools, they cannot adequately determine current impairment in patients with asthma. Healthcare Effectiveness Data and Information Set (HEDIS) measures can identify patients with uncontrolled asthma and report the quality of care for these patients. This measure has been used to identify asthma persistence, but disease severity cannot be adequately

assessed without clinical evaluation.¹⁵ In a retrospective observational study, about half of the 132,414 patients identified as persistent asthmatics according to HEDIS measures met that classification on clinical grounds in more than 1 of 4 years.¹⁶ This suggests that, to better identify more of the persistent asthmatics (and achieve better sensitivity), 2 to 3 consecutive years of repeated HEDIS determination should be done.¹⁶ Based on the cyclical nature of asthma, the HEDIS measure now requires that patients be reevaluated during 2 consecutive years.¹⁶

Obstacle #2: Undertreatment and inadequate use of controller therapy.

Case Study: CA

CA was a 10-year-old boy new to our physician group. His story begins with a call from the school nurse, stating that she was concerned about his frequent wheezing. Initial history revealed that he had only 2 refills for his montelukast tablets in the past year, with 8 albuterol refills in the same time period. CA was found to have mild to moderate, poorly controlled asthma, with an allergy to dust mites. He was placed on an inhaled corticosteroid and environmental controls were discussed with the family. They were advised to implement dust mite allergen control measures and to avoid tobacco smoke in the home. His health plan, however, required that he be followed by his primary care physician (PCP), a pediatrician, rather than by a specialist trained in asthma care. CA was sent back to his PCP with no other follow-up.

CA had persistent wheezing, which should be treated with inhaled corticosteroids. An inhaled corticosteroid was lacking in the current treatment program prescribed by his PCP. CA was in need of and received more definitive therapy: his asthma was brought under control using evidence-based, guideline-driven evaluation and management. Despite this, his health plan ignored the literature demonstrating that specialist care is more effective and economical than primary care for asthma, and made optimal follow-up prohibitively expensive for him.¹⁴ But many of these studies have methodological shortcomings.

Case 2: Discussion

Two recommendations for asthma treatment emerged in NAEPP compared with the previous versions:

1. In children (5 years or older) not adequately controlled on low-dose inhaled corticosteroids (ICSs), it is recommended to increase the ICS dose to a moderate level or to add a long-acting beta₂-agonist (LABA) inhaler.¹
2. Physicians should consider adding omalizumab as adjunctive therapy at steps 5 and 6 if severe persistent allergic asthma is not controlled with the use of a high-dose ICS and LABA.¹

Omalizumab is an injectable, humanized monoclonal anti-IgE antibody available from specialty pharmacies. It is indicated for patients aged ≥12 years with moderate to severe persistent asthma who have a positive skin test or in vitro reactivity to a perennial aeroallergen such as dust mites or cockroach or animal dander, and whose symptoms are inadequately controlled with ICS therapy.¹⁷ Although safe, there is a boxed warning for omalizumab regarding anaphylaxis, so clinicians should be prepared to identify and treat anaphylaxis, should it occur.

Although patients residing in the United States have had access to excellent controller medications and evidence-driven, consensus-derived guidelines for medication use, asthma is often not adequately controlled. In a New York-based independent health association with a pay-for-performance (P4P) program, plan administrators evaluate the care of asthmatic children aged 6 to 17 years using a chronic disease measure. Initially, fewer than 5% of patients were optimally managed; after 3.5 years of this interventional program, 36% of patients were receiving guideline-based medical therapy that matched the severity of their disease.¹⁸

The Gaining Optimal Asthma control (GOAL) study evaluated whether total asthma control could be achieved in patients with uncontrolled asthma by using GINA guideline-based measures (ie, an ICS alone or in combination with a LABA).¹⁹ Only 41% of patients on combination therapy and 28% of patients treated with ICSs alone achieved total control of asthma symptoms.¹⁹ However, the low rates of control in the GOAL study are not necessarily indicative of inadequate guidelines. The REACT study examined, in part, the high rate (55%) of uncontrolled asthma in patients treated with multiple controller medications.²⁰ Evidence suggests that many asthmatic subjects have uncontrolled disease. However, the prevalence of uncontrolled asthma in the United States is not known and has not been fully characterized.

By partnering with national allergy and pulmonary societies, a series of “red flags” can be established and then used by community pharmacists and PBMs to share pharmacy refill data with prescribing physicians to assist in asthma care. Community pharmacists can evaluate uncontrolled asthma by assessing frequency of albuterol refills and determine adherence to or appropriateness of controller therapy. Furthermore, an insightful review of prescriptions from other physicians will enable pharmacists to alert the asthma specialist to other comorbidities known to affect asthma control, such as depression, urticaria, and chronic sinusitis.¹

One of the reasons for surveillance of control at the pharmacy level is the misperception in primary care that high-dose ICSs and LABAs constitute the most effective possible pharmacotherapy. PCPs may think that referral to a specialist is not needed because “There isn’t anything more that can be done, anyway.” Omalizumab is a good example of an additional level of therapy that is available to specialists. Several biologic and other therapies are showing great promise in phase 2 and 3 trials. Most of these antagonize inflammatory mediators such as interleukin-4,²¹ interleukin-5,²² interleukin-9,²³ and interleukin-13.²⁴ The primary efficacy outcome was the relative change in prebronchodilator forced expiratory volume in 1 second (FEV₁). Other biologic therapies are cytotoxic for the immune effectors in asthma such as eosinophils and mast cells. These are expensive therapies, but the high cost may be justified when used in asthmatic patients with severe, uncontrolled symptoms that lead to multiple ED visits and hospitalizations. Studies will need to be conducted to determine if treatment with newer biologic therapies is cost-effective.

However, a pharmacy/MCO disease management program alone is not sufficient for optimal asthma care and cost-effectiveness; it is only part of a comprehensive program to change PCP and patient behavior.²⁵ The North Carolina Asheville Project is a comprehensive, pharmacist-driven medication therapy management program for patients with asthma.²⁶ The program included patient self-care education provided by a certified asthma educator, regular monitoring by pharmacists, decreased copays for asthma medications, and training in medication technique by pharmacists. Substantial improvements from this program included: a reduction in severe and moderate persistent asthma classification from 82% to 49%, an increase in the proportion of patients given written asthma action plans from 63% to 99%, and decreased ED visits or hospitalizations (from 9.9% to 1.3% and 4% to 1.9%, respectively).²⁶ Most importantly,

these improvements persisted for the 5-year observation period. As can be expected, increased asthma medication use increased costs; however, asthma-related medical claims decreased. This resulted in an average reduction in total asthma-related costs of \$725 per patient annually, and the savings in indirect costs (decreased absenteeism and presenteeism, and increased productivity) were estimated to be \$1230 per patient annually.²⁶

Obstacle #3: Inadequate use of controller therapy due to cost and low health literacy.

Case Study: MA

MA, a 51-year-old patient in our allergy group, was doing well until she lost her job as a janitor for the state. She had been taking her controller medication, but now cannot afford the medication. She has been to the ED 4 times in the past 6 months and received bursts of oral steroids and albuterol refills, but no prescriptions for an inhaled corticosteroids. We were able to verify this with the pharmacy refill data that had been transmitted electronically to our asthma management database from her pharmacy. The last time MA called our office, she had been “sick” for 2 days. “Hi, I’ve got bronchitis. I need medication but I don’t have any money and I plan to go to the ED again.” I asked, “What’s your peak flow?” “I don’t know.” “Do you have a peak flow meter?” “Well, yeah. The doctor gave me one.” “Where is it?” “Upstairs somewhere.” “Go get it, I’ll wait.” “I’m not sure where it is.” “Where is your action plan?” “It’s taped to the refrigerator, like the doctor told me.” “Did you follow it?” “No. I am not very good at reading things,” she admitted, “and I wish it had pictures like the handout they gave me in the pharmacy on how to use my inhaler.”

Case 3: Discussion

MA is displaying low health literacy. It is far more common than most physicians, pharmacists, and MCOs realize.²⁷ MA is willing and able to comply with her treatment regimen, but the physician, the pharmacist, and the MCO will need to help her understand it well enough to follow it.

Patient adherence to medication regimens can be improved by educating patients on their actual, rather than perceived, refill rates and better addressing their literacy needs,⁴ to help them understand their integral role in asthma management. Such a program can also ensure

that patients receive asthma care from a provider who recognizes and adapts to the patient's literacy level. It is becoming increasingly recognized that investment in asthma prevention and control initiatives improves health outcomes and reduces overall healthcare costs.²⁸ A systematic review of 12 asthma disease management programs reported that the average overall cost savings was \$729 per participant within 1.3 years.⁷

Asthma morbidity and mortality in underserved areas, especially the inner city, is very high, but this can be reduced with well-designed disease management programs.²⁹ Ethnic disparity in asthma prevalence and morbidity is well correlated with low socioeconomic status and inner city predisposing factors such as psychosocial stress and lifestyle.^{30,31} Pharmacy/MCO/physician interventions can be designed to specifically address persistent airway inflammation due to increased infectious, allergen, and/or irritant exposures, combined with poor adherence (often due to costs of medication), and poor health literacy.

Allocation of Patient Care Responsibilities to Achieve Optimum Asthma Control in an Integrated Physician/Pharmacist/MCO Environment

Primary Care Provider Responsibilities

■ *Patients need a written action and lifestyle plan.*

Written asthma action plans, according to NAEPP, must specify the patient's daily pharmacologic management and how to both recognize and handle worsening asthma. Patients are empowered to adjust the medication doses to bring their asthma back under control without further intervention from their physician.¹ All asthma patients and/or their caregivers must be provided with an individualized, written action/lifestyle plan from their physician, particularly patients with difficult-to-control, persistent asthma, a history of exacerbations, poor adherence to their prescribed medications, multiple comorbidities, and poor health or asthma literacy. Several recommendations in the national guidelines can be easily confirmed at the pharmacy level¹:

- Steroid-naïve patients with mild disease should be started on ICSs only, because of insufficient evidence regarding efficacy of combination therapy at this level of disease (step 2)
- For asthmatics inadequately controlled on low-dose ICS, it is reasonable to either increase the steroid dose or add a LABA (step 3)
- LABAs should be add-on therapy, not used as monotherapy in asthma (steps 3-6)

- Omalizumab should be considered at steps 5 and 6 in patients who have allergies
- Chronic oral corticosteroid therapy should be used only for patients with severe, uncontrolled asthma (ie, symptomatic despite combination therapy with high-dose ICS and a LABA) (step 6).

Physicians must encourage adherence to asthma therapy by reviewing the success of the treatment plan with the patient/caregiver at each visit.

■ *Establish the patient's level of asthma control and general health literacy and then educate patients about self-management and adherence.*

All patients should be provided with the necessary knowledge and skills to control their asthma and improve clinical outcomes. This includes basic facts about asthma, what defines well-controlled asthma, and the patient's current level of control. Patients should also understand the actions of medications, have appropriate skills (eg, inhaler technique), know when and how to handle signs and symptoms of worsening asthma, and know when and where to seek care.¹ Failure to educate patients in these areas may lead to nonadherence.

Self-management of asthma is difficult in patients with low health literacy, which leads to poorer outcomes.³² Tests to establish literacy level should be done at the initiation of therapy or environmental control. Example assessments include the Asthma Numeracy Questionnaire (ANQ) and general health literacy using the Short Test of Functional Health Literacy in Adults (S-TOFHLA).^{33,34}

■ *Assess control at every clinical encounter (including pharmacy refill rates).*⁵

A validated patient self-assessment questionnaire such as the 5-item ACT should be administered during every clinical encounter (including pharmacy visits), since asthma control varies continuously.^{35,36} These questionnaires assess control over a period of time, such as 2 to 4 weeks, do not require special equipment like spirometers, and help patients understand exactly what control means. Importantly, patient questionnaires (such as the Asthma Therapy Assessment Questionnaire [ATAQ]) can predict routine and emergency healthcare use for asthma.³⁷ In addition, pharmacy refill data can be useful to: 1) measure medication adherence; 2) assess impairment with the ratio of refills of controller medication to reliever medication per year, with a ratio of 1 canister of albuterol to 12 refills of controller medication received per year as the ideal ratio; 3) identify risk by counting

bursts of oral corticosteroid therapy; and 4) identifying patients with persistent asthma, as determined by use of 2 or more canisters of albuterol per year without the concomitant administration of a controller medication.

■ *Refer appropriate patients to specialists*

Referral to a specialist by the PCP is essential for comprehensive treatment of moderate to severe asthma patients not controlled with combination therapy and at risk for exacerbations that require oral corticosteroid therapy. PCPs should refer patients to a specialist for asthma care consultation in the following situations^{1,36}:

- Life-threatening asthma exacerbations
- Asthma uncontrolled after 3 to 6 months of treatment
- Diagnosis is uncertain, or complicated by other conditions (eg, sinusitis, chronic obstructive pulmonary disease)
- Additional diagnostic testing is indicated
- Complications of therapy
- Persistent asthma with allergy symptoms. In order to recommend relevant allergen avoidance measures, skin testing or blood testing should be conducted to determine whether or not specific IgE antibodies to allergens are present
- Pediatric or adult patient requiring step 4 care or higher (step 3 for children 0-4 years old).

In areas of poor specialist penetration, there may be a role for telemedicine or videoconferencing to increase access to specialty care.

Pharmacist Responsibilities

■ *Reinforce adherence to Asthma Action Plan/check control (albuterol refills, oral corticosteroid refills).*

Multiple factors predispose asthmatics to nonadherence, including prolonged medication regimens, multiple medications, complex regimens requiring changes in medications as symptoms flare up, expensive medications with large out-of-pocket payments or co-pays, potential adverse effects of some medications (especially inhaled corticosteroids), and inadequate follow-up.³⁸ Adherence rates are often below 50%. Multiple treatment-, clinician-, and patient-related barriers prevent the achievement of satisfactory levels of adherence. Treatment-related barriers include prolonged and complex regimens, adverse effects, cost, and delayed onset of action. Clinician-related barriers include difficulty in scheduling, treatment by one different caregiver after

another, perceived clinician disinterest, and time constraints. Patient-related barriers include mild or severe asthma, poor understanding of the need for treatment, insufficient confidence in the clinician or medication, the presence of psychological problems, and low motivation to change behavior. Although all of these factors must be addressed to maximize adherence, patient motivation may be the most critical. This task falls primarily to clinicians (physicians, nurses, staff).³⁹ Nonadherence is a major cause of poor clinical outcomes, including treatment failures, decreased QOL, escalations of therapy, complications, and hospitalizations.⁴⁰ Low rates of adherence to preventive medications in particular have been associated with higher rates of hospitalization and death.^{40,41} At the time the patient picks up an albuterol refill, the pharmacist should evaluate medication adherence, review the asthma action plan, and assess control.

■ *Review patient understanding of medications.*

The main responsibility for assessing health literacy and asthma control resides with the prescribing physician but health literacy is not always being adequately addressed.⁴ The pharmacist is in a unique position to follow up on the prescribing physician's assessment of each patient's health literacy and to evaluate each patient's use of the prescribed medications. Pharmacists should be able to address gaps in the patient's understanding of asthma and the treatment plan. A simple tool for assessing health literacy in this setting, along with instructions for medication use designed for the patient's level of literacy, would help identify gaps in or changes from the physician's assessments.

■ *Encourage PCP follow-up or specialist referral.*

Despite the demonstrated cost-effectiveness of specialty care for asthma, many patients with uncontrolled symptoms of asthma languish in the primary care office, and many others self-treat with over-the-counter medications. With a thorough working knowledge of the guidelines for asthma treatment and control as detailed above, pharmacists can identify at-risk patients. Most importantly, by understanding the therapeutic modalities available to allergists and environmental avoidance measures, pharmacists can identify patients with uncontrolled asthma and can suggest that the patient seek specialty care.

MCOs' and PBMs' Responsibilities

The following responsibilities on the part of MCOs and PBMs will greatly facilitate the success of an expanded asthma management program:

■ *Patient information is available to clinicians to evaluate asthma control.*

As mentioned above, MCO and pharmacy data, accessed at the pharmacist level, can provide 4 key elements to help manage asthma:

- Identify impairment (reliever/controller ratio)
- Identify risk (bursts of oral corticosteroids)
- Assess medication adherence (contributing factor to risk)
- Identify undiagnosed asthmatics (frequent relievers/no controller medication)

At each clinical encounter, physicians need information about ED visits for asthma exacerbations and prescription refill rates to adequately assess control and counsel patients about adherence. The development of electronic data feeds to provide physicians with real-time pharmacy refill rates will facilitate patient counseling about adherence. Access to registries of health plan members in need of asthma care will focus resources. This is more effective than having physicians access population-based data from written records.⁴²

■ *Ensure that patients' benefit plans allow access to appropriate drugs.*

Innovative biologic therapies are very expensive and have led health plans to implement policies to control costs, such as raising beneficiary copayments and establishing prior authorization criteria.⁴³ A 2004 study conducted by RAND showed that chronically ill patients reduce their medication use by 8% to 23% when copays are doubled.⁴⁴ A retrospective 4-year study examined pharmacy claim data with health plan benefit design and found the effects of increasing copayments for the asthma medications reduced the overall days of asthma treatments received by patients by 32%.⁴³

Prior authorization is a tool for preventing inappropriate use of medications, but it should not be used in a way that leads to suboptimal outcomes or increases treatment costs.⁴⁵ The prior authorization process should shift from focusing on formulary status and previous step edits to assessing the need for a therapeutic change based on the patient's current assessment of impairment and risk. It is short-sighted to deny an increase in daily controller medications on the basis of cost when a patient has required oral corticosteroids or had 1 or more urgent visits for uncontrolled asthma in the past year. Rather than to merely ask if a patient has previously tried the health

plan's formulary alternatives, the prior authorization process should also assess each patient's QOL, the number of upper or lower respiratory infections requiring antibiotics, unscheduled/urgent/emergent healthcare encounters, and the number of prescriptions for oral corticosteroid therapy.

■ *Sufficient financial incentives should be available for improving performance.*

Reduction of copays has been shown to enhance adherence to asthma treatment regimens.⁴⁶ In one example, Pitney Bowes reduced copays for asthma medications. As a result, more people filled and refilled prescriptions for this inhaled corticosteroid and adhered to their drug regimens.⁴⁷ This plan cost Pitney Bowes \$1 million a year, and utilization of maintenance medications increased. However, the use of asthma rescue medications decreased, and both ED visits and hospitalization rates decreased during the first year. Within 3 years, the median total asthma cost for employees fell 15%, and the plan had paid for itself.⁴⁷

■ *Employ interventions that address the asthma literacy needs of all patients.*

The complexity of insurance plans and healthcare systems also may pose particular difficulty for those with poor access as well as limited asthma literacy.⁴⁸ Excessive rescue medication use, frequent oral corticosteroid bursts, and the frequent need for urgent/emergent care are signs of low health literacy. These events should trigger increased vigilance at the physician, pharmacy, and MCO levels to better define the underlying cause and correct the deficiencies. Efforts are under way to design mobile phone applications, educational group sessions, and Web-based educational programs to address health literacy disparities.

■ *Develop a program to reward improvement in patient outcomes.*

Although most plans use the results of P4P programs internally, some make these performance "report cards" available to health plan members or to the general public. Health plan members can compare providers on the basis of performance, and health plans use P4P program data to motivate providers to improve performance.⁴⁹ Programs that allow patients to make decisions based on provider performance would provide further incentives to healthcare providers to improve clinical outcomes. A report card system should be extended to all patients. We have conducted patient focus

groups and have begun to institute the asthma report card (ARC) as a way of following patient outcomes with the patient, and populating patient registries for further outcomes research. We have found that individualized patient education letters and ARCs signed by their PCPs are more effective than those sent on behalf of/from the health plan.

Conclusion

Expanding partnerships in asthma control is especially crucial and timely. The prevalence of asthma continues to increase, especially among children and adolescents in underserved communities. An expanding range of new treatments is now available that can often successfully control the disease and help prevent exacerbations, if fully utilized. A pharmacy/MCO-led comprehensive, coordinated care approach that includes a health literacy program can potentially improve the quality and value of care delivered. This comprehensive program could improve clinical outcomes, patients' satisfaction, and QOL, decrease absenteeism, and increase employee productivity. The potential exists to reduce healthcare utilization and long-term costs and increase patient satisfaction with their health plans. To be successful, these programs must follow evidence-based guidelines, individualize treatment, and provide overall population management incentives.

Every aspect of current asthma care in the United States requires improvement. First and most importantly, primary care of asthma needs to be more guideline-based, patient adherence needs to improve, and referrals of difficult-to-control asthmatics to specialists need to be made. Current efforts to develop telemedicine services to provide access to specialty care of asthma will help, but appropriate training of pharmacists to assist in identifying poor asthma control, low health literacy, and the need for specialist referral is a huge potential resource. Retail pharmacies are also businesses, so pilot programs will be required to show that increased sales of prescription drugs to patients adhering to their treatment plans will justify the additional pharmacist time. Lastly, MCOs need to enlist the help of the allergy and pulmonary specialty societies in designing a comprehensive and evidence-based program and to partner with and incentivize patients, pharmacists, specialists, and primary care providers to maximize effectiveness and cost savings. Implementing even part of this program will improve asthma management and reduce the financial burden of treating this increasingly prevalent chronic disease.

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TEST

Guidelines for Collaboration Among Physicians, Pharmacists, and
Managed Care Organizations to Improve Asthma Outcomes

Posttest

- 1. Should inhaled corticosteroids be avoided in pregnant women with asthma?**
- A. Yes, in utero exposure to corticosteroids is associated with low birth weight
 - B. Yes, the risk of in utero exposure to corticosteroids is more serious than uncontrolled asthma
 - C. No, it is safer for pregnant women who have asthma to be treated with asthma medications than to have asthma symptoms and exacerbations.
 - D. No, but the patient should be given the lowest dose possible and weaned off the inhaler, if possible
- 2. When should a patient be referred to an asthma specialist?**
- A. After a life-threatening asthma exacerbation
 - B. If the patient has had a complication related to asthma treatment
 - C. 4-year-old patient requiring step 3 care
 - D. All of the above
- 3. When should physicians consider omalizumab therapy?**
- A. At steps 5 and 6 if severe persistent allergic asthma is not controlled
 - B. At steps 4 and 5 if severe asthma is not controlled
 - C. In any patient with persistent allergic asthma
 - D. As monotherapy for patients with severe, persistent allergic asthma
- 4. Which of the following should every asthma patient receive from their primary care physician?**
- A. Asthma action plan
 - B. Health literacy assessment
 - C. Self-management and adherence education
 - D. All of the above
- 5. Which of the following assessments should be conducted at each primary care physician clinical encounter?**
- A. Asthma Therapy Assessment Questionnaire (ATAQ)
 - B. Short Test of Functional Health Literacy in Adults (S-TOFHLA)
 - C. Asthma Control Test (ACT)
 - D. Asthma Numeracy Questionnaire (ANQ)
- 6. Which of the following should community pharmacists do to assess asthma medication adherence?**
- A. Assess patient's health literacy
 - B. Review pharmacy data and determine if corticosteroid inhaler is being used as prescribed
 - C. Administer the Asthma Control Test (ACT)
 - D. Review the patient's asthma action plan
- 7. Why is it important for the pharmacist to assess health literacy?**
- A. Patients with low asthma literacy should be referred to an asthma specialist
 - B. Patients with low health literacy may be unable to correctly follow the asthma action plan
 - C. Patients with low health literacy are more likely to have severe persistent asthma
 - D. Pharmacists should not assess health literacy; this should be done by the primary care physician
- 8. What is the effect of the amount of the copay on medication adherence?**
- A. Increasing the amount of the copay has no effect on medication adherence
 - B. Decreasing the amount of the copay decreases medication adherence
 - C. Doubling the amount of the copay substantially decreases medication adherence
 - D. Doubling the amount of the copay has no effect on medication adherence
- 9. What can be done to improve the prior authorization process?**
- A. Shift from focus on formulary status to need for a therapeutic change based on individual patient needs
 - B. Do not include assessments of quality of life, infection rates, and oral corticosteroid use
 - C. The prior authorization process improved medication adherence and should not be modified
 - D. Allow patients to be more involved in the prior authorization process