Purpose of the Study. Asthma guidelines are well-established but often followed poorly. Determinants of adherence among older persons may differ from younger persons and have not been well-characterized. The purpose of this study was to assess adherence to asthma medication guidelines among older women with asthma and evaluate predictors of adherence with emphasis on asthma characteristics, comorbid medical conditions, work-related factors, social supports, caregiving, and emotional well-being.

Study Population and Methods. The authors assessed adherence to the National Asthma Education and Prevention Program medication guidelines among participants in the Nurses’ Health Study who reported a physician diagnosis of asthma and reconfirmed the diagnosis on a separate questionnaire, excluding those with chronic obstructive pulmonary disease.

Results. Among 121,700 participants in the Nurses’ Health Study, 5107 reported physician-diagnosed asthma meeting inclusion criteria. Mean ± standard deviation (SD) age was 63 ± 7 years in 1998. Adherence with asthma medication guidelines was 57% for mild persistent, 55% for moderate persistent, and 32% for severe persistent asthma (P < .001). In multivariate analysis, nonadherence was associated with severe asthma, increasing age, lower socioeconomic status, current smoking, earlier onset of asthma, and number of comorbid medical conditions. Measures of social isolation, caregiving, and emotional wellbeing were not associated with nonadherence.

Conclusions. Asthma is undertreated among older women, even those who are health care professionals. Women with advanced age and severe asthma were particularly at risk. Given that the greatest increase in asthma mortality has occurred among older women, additional research is needed to examine physician prescribing patterns and patient beliefs in this vulnerable population.

Reviewer’s Comments. Unfortunately, severe asthma is often a result of nonadherence. Nonetheless, it’s helpful to identify the “profile” of patients most in need of our attention and interventions.

Allen Adinoff, MD
Aurora, CO

ASTHMA IN OLDER PATIENTS: FACTORS ASSOCIATED WITH HOSPITALIZATION


Purpose of the Study. Although older adults (≥65 years) with asthma have higher rates of hospitalization and death from asthma than younger adults, the reasons for this are not known. The purpose of this study was to determine if patterns of care were less favorable for older than younger adults with asthma and to assess whether patient characteristics such as symptom severity and comorbid illnesses explain the higher rate of hospitalization.

Study Population and Methods. This study was a prospective cohort study of 6990 adults with asthma in 15 managed care organizations in the United States. Participants completed a survey of demographics, symptoms, health status, comorbid illnesses, treatment, access to care, self-care knowledge, physician specialty, and health care use.

Results. Among 6990 adults with asthma, 554 (8%) were 65 years or older and 1942 (29%) were 18 to 34 years old. Older patients were more likely than younger patients to be men, white, non-Hispanic, and less educated. At baseline, older patients reported a greater frequency of asthma-related symptoms, such as daily cough (36% vs 22%; P < .001) and wheezing (27% vs 22%; P < .002). They were also more likely to report comorbid conditions, such as sinusitis (50% vs 38%), heartburn (35% vs 23%), chronic bronchitis (43% vs 16%), emphysema (19% vs 1%), congestive heart failure (8% vs 1%), and history of smoking (54% vs 34%; all P < .001). Care appeared to be better for the older patients compared with the younger, including more frequent use of inhaled corticosteroids, greater self-management knowledge, and fewer reported barriers to care. In the follow-up year, older patients were approximately twice as likely to be hospitalized (14%) than were younger patients (7%; P < .001). In multivariate analysis, however, older age was not predictive of future hospitalization (odds ratio: 1.05; 95% confidence interval: 0.68–1.61), after adjustment for sex, ethnicity, education, baseline asthma symptoms, health status, comorbid illnesses, and tobacco use. Factors independently associated with hospitalization included being female, nonwhite, less educated, and less physically healthy, and more frequent asthma symptoms.

Conclusions. Although the older adults with asthma had greater respiratory symptoms and more comorbidity than their younger counterparts, chronologic age was not an independent risk for hospitalization. Appropriate care for older adults with asthma should address asthma symptoms and other chronic conditions.

Reviewer’s Comments. It was at least comforting to see that the older patients received at least the same level of care as the younger patients. It was not surprising to find that those patients who were generally not well and had more frequent asthma were more likely to be hospitalized for asthma.

Allen Adinoff, MD
Aurora, CO

ASTHMA IN ADVENTURE TRAVELERS: A PROSPECTIVE STUDY EVALUATING THE OCCURRENCE AND RISK FACTORS FOR ACUTE EXACERBATIONS


Purpose of the Study. Exacerbation of asthma during travel to remote regions may lead to devastating consequences. The course of asthma in travelers and the risk factors for disease exacerbation during travel have not been studied. The authors screened 5835 consecutive travelers identified 203 patients with asthma. Before travel, all enrollees were assessed for presumed risk factors for asthma exacerbation by means of an interview and an exercise test combined with spirometry. After travel, data regarding travel characteristics and asthma severity were recorded by means of a structured telephone interview.

Results. The 203 enrollees visited 56 countries for a median duration of 13 weeks. 147 were engaged in high-altitude trekking, and 88 had asthma attacks. Among these, 40 reported worsening asthma during travel, 32 experienced the worst asthma attack ever, and 11 reported a life-threatening asthma attack. Two independent risk factors for attacks during travel were identified: frequent use (≥3 times weekly) of inhaled bronchodilators before travel (relative risk [RR]: 3.35; 95% confidence interval [CI]: 1.75–6.39) and participation in intensive physical exertion during treks (RR: 2.04; 95% CI: 1.04–3.98). When both risk factors were present, the RR for asthma attacks increased to 5.52 (95% CI: 2.81–10.84).

Conclusions. Asthma frequently worsens during travel and should not be ignored as a potentially life-threatening condition requiring pretravel consideration. Asthmatic
travelers who frequently use inhaled bronchodilators before travel or participate in intensive trekking during travel are at increased risk to develop asthma attacks. Therapy should be intensified to achieve better disease control; intensive trekking should be discouraged.

Reviewer’s Comments. What really impressed me is that these travelers took vacations for a “median duration of 13 weeks.” Who’s at home doing all the work while these guys are out trekking for months at a time? It would appear that the combination of poorly controlled asthma (ie, frequent bronchodilator use) combined with the heavy exertion during treks was a nasty combination for inducing attacks of asthma. It would also seem that in anticipation of travel involving heavy exertion such as high altitude treks, asthma control really needs to be tightened up or these patients might be (and you knew this was coming) “too loose to trek.”

Allen Adinoff
Denver, CO

THE IMPACT OF FOLLOW-UP PHYSICIAN VISITS ON EMERGENCY READMISSIONS FOR PATIENTS WITH ASTHMA AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A POPULATION-BASED STUDY

Sin DD, Bell NR, Svenson LW, Man SF. Am J Med. 2002;112:120–125

Purpose of the Study. The purpose of this study was to examine the relation between follow-up office visits after emergency discharge and the risk of emergency readmissions in patients with asthma or chronic obstructive pulmonary disease (COPD).

Study Population and Methods. We used population-based data to identify all patients in Alberta, Canada, who had at least 1 emergency visit for asthma or COPD between April 1, 1996, and March 31, 1997 (N = 25,256). A Cox proportional hazards model was used to estimate the adjusted relative risk (RR) of a repeat visit to an emergency department (ED) within 90 days of an initial emergency visit in patients who did or did not have an office follow-up within the first 30 days.

Results. There were 7,829 patients (31%) who had an office visit during the 30 days after their initial emergency encounter. Follow-up visits were associated with a significant reduction in the 90-day risk of an emergency readmission (RR: 0.79; 95% confidence interval [CI]: 0.73–0.86). Sensitivity analyses showed that a follow-up visit was inversely associated with a repeat emergency visit after adjusting for age, sex, area of residence, and income.

Conclusions. Although these data should be interpreted with caution because of missing information on factors such as quality of care, they suggest that follow-up office visits are effective in reducing early relapses in patients who have been recently treated in EDs for asthma or COPD.

Reviewer’s Comments. These results come as no surprise to those of us in office practices. I try to have telephone contact within 24 hours and an office visit within 72 hours for asthmatics treated in an ED for an attack of asthma. Unfortunately, in this country too many patients don’t have an office to follow-up with (which is why they used the ED in the first place).

Allen Adinoff, MD
Aurora, CO

A PROSPECTIVE MULTICENTER STUDY OF FACTORS ASSOCIATED WITH HOSPITAL ADMISSION AMONG ADULTS WITH ACUTE ASTHMA


Purpose of the Study. The authors sought to determine patient characteristics associated with hospital admission after emergency treatment for asthma, and whether disposition guidelines are followed.

Study Population and Methods. The authors performed a prospective multicenter cohort study involving 64 emergency departments in the United States and Canada. Consecutive adult patients with asthma exacerbations were interviewed, and their charts were reviewed using standardized protocols. Telephone follow-up at 2 weeks determined relapse.

Results. Of 1,805 patients, 363 (20%; 95% confidence interval [CI]: 18%–22%) were hospitalized. Among patients with severe exacerbations (final peak flow <50% of predicted), 122 (49%; 95% CI: 43%–55%) were hospitalized. Admission was associated with final peak flow, female sex, non-white race, severity of chronic illness, and severity of exacerbation. Admission predictors were similar regardless of hospital funding, region, or size. Among patients with mild or moderate exacerbations of asthma (peak flow ≥50% predicted), the likelihood of admission was associated significantly with the number of predefined risk factors for death from asthma. Of patients who were discharged from the emergency department, 62 (5%; 95% CI: 4%–6%) relapsed within 72 hours. Relapse was not associated with final peak flow (P = .39).

Conclusions. Associations between patient characteristics and disposition were similar across sites. Despite guidelines to the contrary, half of patients with final peak flow <50% were discharged. After emergency department treatment and discharge, short-term relapse was uncommon among patients with asthma, suggesting that strict peak flow cutoffs may be unnecessary if risk factors in patients with mild or moderate exacerbations are considered.

Reviewer’s Comments. Results of this and other similar studies suggest that rational criteria for hospital admission can be established for patients with attacks of asthma. It’s good to see that emergency departments have developed admission criteria that extend beyond just peak flow measurements.

Allen Adinoff, MD
Aurora, CO

Epidemiology

CHILDHOOD VACCINATIONS AND RISK OF ASTHMA


Purpose of the Study. A few previous studies have suggested that childhood vaccines may increase the risk of asthma, especially whole cell pertussis vaccine. The aim of this study was to evaluate the suggested association between childhood vaccination and risk of asthma.

Study Population. A cohort of 167,240 children enrolled in 4 large health maintenance organizations in the western United States was followed from birth until at least 18 months to a maximum of 6 years.
# ASTHMA IN ADVENTURE TRAVELERS: A PROSPECTIVE STUDY EVALUATING THE OCCURRENCE AND RISK FACTORS FOR ACUTE EXACERBATIONS

## Allen Adinoff

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