before the visit, no severe flare-ups of asthma since the last visit, normal lung function, and no reported limitations on the patient’s activities or exercise. Other data collected included physician estimate of compliance with the management plan, indicators of asthma morbidity, and severity assessments based on guideline criteria. Cox regression analysis was conducted to determine the cumulative probability that a new patient will achieve asthma control with each subsequent visit.

RESULTS. A total of 2185 patients were eligible for evaluation of time to first achieve control, and 1591 patients were eligible to evaluate subsequent control maintenance. Of these patients, 70% to 87% achieved control by visit 3, and 89% to 98% achieved control by visit 6. Subsequent control maintenance was variable. Thirty-nine percent displayed well-controlled asthma (control at >90% of subsequent visits), and 13% had difficult-to-control asthma (control at <50% of subsequent visits). Maintenance of control was influenced by physician-estimated compliance with the treatment plan, baseline severity, and the interval between clinic visits.

CONCLUSIONS. Asthma control can be achieved in the majority of children in an urban setting if they participate in a structured disease-management program. Long-term maintenance of asthma control was variable, and physician-rated compliance was the factor most closely associated with the probability of controlled asthma in all severity groups.

REVIEWER COMMENTS. This study reported remarkably similar rates of initial asthma control across a broad severity spectrum in a lower socioeconomic urban setting. Equally noteworthy is the observation that maintaining such control was challenging across the severity spectrum, too. These findings reinforce the importance of routine monitoring of patients with persistent asthma, which is the cornerstone of recent revisions in the National Heart, Lung, and Blood Institute guidelines. This self-selected group of patients was more likely to be motivated and compliant with asthma-management plans. Nonetheless, this study shows what can be achieved, often with some difficulty, with a systematic approach in this patient population.

Assessment of Inhalation Technique in Children in General Practice: Increased Risk of Incorrect Performance With New Device

PURPOSE OF THE STUDY. To assess the inhalation technique of asthmatic children with varying inhalation devices over time.

STUDY POPULATION. The study included children between the ages of 6 and 7 years who were prescribed at least 2 β agonists or controller medications by a general practitioner during 2000–2003 in the Netherlands.

METHODS. Inhalation technique was evaluated twice by using a standardized checklist first at enrollment in the study (n = 530) and 1 year later (n = 362). If children used >1 device, they were asked to demonstrate (with a placebo) their inhalation technique for the different inhalers. The study was observational, and no inhalation instructions were given. At enrollment, parents were questioned on previous inhalation instructions.

RESULTS. A total of 131 (24%) children made ≥1 essential error with their inhaler devices initially. Children with a longer duration of asthma showed significantly more frequent incorrect inhaler performance. Incorrectly performing children with a metered-dose inhaler (MDI) with a spacer received less inhalation instruction by a health care worker as reported by the child or parent. The poor performance in children with a pressurized MDI was only slightly and not significantly better if they had received inhalation instruction (P = .2). Children who kept the same device more often demonstrated correct technique compared with the year before. This was irrespective of the type of inhaler and only significant for children with an MDI (without spacer). Despite this improvement after 1 year, children with an MDI again performed worse compared with all of the other inhaler types. Moreover, Discus and other dry-powder–inhalation devices were more often demonstrated correctly compared with MDIs with or without a spacer. Of the children who were prescribed a new device, 21% (24 of 114) demonstrated an incorrect technique compared with 11% (26 of 241) of the children who kept the same device (P = .01). Furthermore, 41% (37 of 91) of incorrect performances appeared to be correct 1 year later. Conversely, 4% (11 of 300) of the correct performances were incorrect at the end of the study. The MDI was still significantly and strongly associated with incorrect technique.

CONCLUSIONS. Children are prone to use inhalation devices incorrectly if they are not monitored closely in correct use. Pressurized MDIs with and without a spacer were more prone to errors compared with dry-power inhalers. Children prescribed a new device were more prone to usage errors.

REVIEWER COMMENTS. Although MDIs and dry-power–inhaler devices offer convenient and effective means of controller- and rescue-medications delivery, proper instruction and reinforcement of technique is essential to
Health Plan Notification and Feedback to Providers Is Associated With Increased Filling of Preventer Medications for Children With Asthma Enrolled in Medicaid


PURPOSE OF THE STUDY. To determine if children enrolled in Medicaid managed care that provides asthma-specific communication to providers would be more likely to have adequate asthma-medication filling.

STUDY POPULATION. The study included 4498 children between the ages of 2 and 17 years with moderate-to-severe asthma enrolled in Medicaid in Tennessee and Washington State from 2000 and 2002.

METHODS. Study subjects had (1) an asthma hospitalization or asthma emergency department (ED) visit, (2) high use of asthma medications in the 6 months before their hospitalization or ED visit, and (3) stayed in the same Medicaid health plan from study entry through follow-up. Interviews were conducted with health plans to identify communication strategies used to improve asthma care by providers in the plan. The main outcome measure was guideline-recommended filling of asthma-preventer medications.

RESULTS. In the 365-day follow-up period, children in plans that provided specific feedback to providers about asthma quality and notified providers when children had an asthma-related event had higher rates of filling prescriptions than children in plans with neither (164.6 ± 13 vs 135.3 ± 10.8 days; P < .05). For children with the greatest asthma severity, enrollment in a plan with both features was associated with 27.1 additional days of filling (95% confidence interval: 0.7–53.4 days) during the follow-up period.

CONCLUSIONS. Health plan communication to providers was associated with increased preventer filling in children with moderate-to-severe asthma in 2 state Medicaid programs.

REVIEWER COMMENTS. The children with the higher preventer fill rates only used their medications for less than half of the year. Identification of patients at high risk and frequent follow-up are needed to ensure more regular use of preventer medications. Health plans could assist providers by providing quarterly updates of fill rates for these patients at high risk so that intervention could occur before the patient ends up in the hospital or ED.

Health Plan Notification and Feedback to Providers Is Associated With Increased Filling of Preventer Medications for Children With Asthma Enrolled in Medicaid


PURPOSE OF THE STUDY. To determine if children enrolled in Medicaid managed care that provides asthma-specific communication to providers would be more likely to have adequate asthma-medication filling.

STUDY POPULATION. The study included 4498 children between the ages of 2 and 17 years with moderate-to-severe asthma enrolled in Medicaid in Tennessee and Washington State from 2000 and 2002.

METHODS. Study subjects had (1) an asthma hospitalization or asthma emergency department (ED) visit, (2) high use of asthma medications in the 6 months before their hospitalization or ED visit, and (3) stayed in the same Medicaid health plan from study entry through follow-up. Interviews were conducted with health plans to identify communication strategies used to improve asthma care by providers in the plan. The main outcome measure was guideline-recommended filling of asthma-preventer medications.

RESULTS. In the 365-day follow-up period, children in plans that provided specific feedback to providers about asthma quality and notified providers when children had an asthma-related event had higher rates of filling prescriptions than children in plans with neither (164.6 ± 13 vs 135.3 ± 10.8 days; P < .05). For children with the greatest asthma severity, enrollment in a plan with both features was associated with 27.1 additional days of filling (95% confidence interval: 0.7–53.4 days) during the follow-up period.

CONCLUSIONS. Health plan communication to providers was associated with increased preventer filling in children with moderate-to-severe asthma in 2 state Medicaid programs.

REVIEWER COMMENTS. The children with the higher preventer fill rates only used their medications for less than half of the year. Identification of patients at high risk and frequent follow-up are needed to ensure more regular use of preventer medications. Health plans could assist providers by providing quarterly updates of fill rates for these patients at high risk so that intervention could occur before the patient ends up in the hospital or ED.

Adherence to Follow-up Recommendations in Asthma


PURPOSE OF THE STUDY. To assess the willingness of parents of children with possible asthma to visit their general practitioner (GP).

STUDY POPULATION. A cross-sectional group of 130 Dutch children aged 7 to 10 years with possible asthma were studied.

METHODS. Participating parents completed the International Study of Asthma and Allergies in Childhood questionnaire. A child was considered to have “diagnosed asthma” if a doctor had diagnosed him or her with asthma in the preceding 12 months. A child was considered to have “possible asthma” if the child had (1) no physician-diagnosed asthma in the preceding 12 months, (2) asthma symptoms in the preceding 12 months, and (3) either reversible airway obstruction or bronchial hyperreactivity. Parents of children with possible asthma were sent a letter recommending further medical evaluation by their GP. The GP received a letter with the results of the questionnaire and lung-function tests. A research nurse contacted parents to conduct a telephone interview regarding adherence to recommendations.

RESULTS. A total of 2745 children were invited to participate in the study, and 1758 children participated. Eighty-one (5%) children were diagnosed with asthma and 130 (8%) had a possible diagnosis of asthma, which represented the study population. A follow-up interview was completed for 114 children (88%). Sixty-two percent of the children visited a doctor, and 38% of the parents refused to visit the GP. The main reason for parents not visiting a GP was absence or mildness of symptoms. Most of the parents stated that they would visit a GP if symptoms worsened.

CONCLUSIONS. Two thirds of the children with undiagnosed asthma visited their GP. Willingness to follow-up the recommendations was greater for children with more severe airway reversibility and if the mother was less well educated.
Assessment of Inhalation Technique in Children in General Practice: Increased Risk of Incorrect Performance With New Device

Harvey L. Leo

Pediatrics 2008;122;S210
DOI: 10.1542/peds.2008-2139JJJ

Updated Information & Services
including high resolution figures, can be found at:
/content/122/Supplement_4/S210

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
Allergy/Immunology
/cgi/collection/allergy:immunology_sub

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
/site/misc/Permissions.xhtml

Reprints
Information about ordering reprints can be found online:
/site/misc/reprints.xhtml
Assessment of Inhalation Technique in Children in General Practice: Increased Risk of Incorrect Performance With New Device

Harvey L. Leo

*Pediatrics* 2008;122;S210

DOI: 10.1542/peds.2008-2139JJJ

The online version of this article, along with updated information and services, is located on the World Wide Web at:

/content/122/Supplement_4/S210