

REVIEWER COMMENTS. Asthma screening in children relies on parental recognition of asthma symptoms. The authors pointed out that parents often underrecognize symptoms of asthma in their child. However, when confronted with information of a possible asthma diagnosis, the majority of parents sought advice from their GP. Asthma screening programs can be a useful tool for helping children with undiagnosed asthma to seek professional care.

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### Impact of Interview Mode on Accuracy of Child and Parent Report of Adherence With Asthma Controller Medication

Bender BG, Bartlett SJ, Rand CS, Turner C, Wamboldt FS, Zhang L. *Pediatrics*. 2007;120(3). Available at: [www.pediatrics.org/cgi/content/full/120/3/e471](http://www.pediatrics.org/cgi/content/full/120/3/e471)

PURPOSE OF THE STUDY. To examine the effect of different modes of reporting adherence on the accuracy of self-administration of inhaled corticosteroids in asthmatic children under conditions mimicking a clinical trial.

STUDY POPULATION. A total of 104 asthmatic children, 8 to 18 years old, who were being treated for asthma with regular use of inhaled corticosteroids were studied. One parent was required to participate with each child.

METHODS. Each parent/child pair was assigned to 1 of 3 self-reporting modes: audio computer-assisted self-interview (ACASI), face-to-face interview with a member of the study staff, or self-administered paper-and-pencil questionnaire. The same mode was administered at each study visit for any given parent/child pair: baseline and at 1, 2, 3, and 4 months. Corticosteroid metered-dose inhalers were fitted with an electronic chronometer that captured the time and date of metered-dose inhaler dispensing, freshly initialized at baseline and at each study visit. Adherence was determined by dividing the number of puffs recorded by the number of puffs prescribed. Self-assessment of adherence was determined similarly for the 3 modes. The recall time frames were 1 week and 1 day. The primary outcome was self-reporting discrepancy (percent adherence recorded minus percent self-adherence self-reported). A positive discrepancy score represented underreporting, a negative score represented overreporting, and zero represented exact reporting. Adequate accuracy was considered when the discrepancy score was  $\pm 25\%$ .

RESULTS. Children and parents overrepresented adherence for both the 1-week and 1-day monitoring periods. Adherence discrepancy was the greatest in the ACASI mode (adequate accuracy for children and parents, respec-

tively, was 32% and 27% for 1-day recall and 47% and 38% for 1-week recall). The best accuracy was for the 1-day recall in children interviewed face-to-face (50% adequate). Larger discrepancies were observed in both children and parent with the other modes.

CONCLUSIONS. Self-reporting of adherence was insufficient even under the best of circumstances regardless of the mode of self-reporting used in this study.

REVIEWER COMMENTS. The recently updated National Asthma Education and Prevention Program report underscored the need to address adherence when considering a step up in asthma medication. Inaccurate accounting for adherence may taint clinical trials that examine treatment outcomes and on which guidelines are based. Several studies have used electronic chronologs to monitor adherence. Even then, dose dumping (dispensing several puffs in the air over a short period to boost the number of dispensings recorded) has been reported. You can lead a patient to an inhaler, but you can't make them inhale.

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### Early Rattles, Purrs and Whistles as Predictors of Later Wheeze

Turner SW, Craig LCA, Harbor PJ, et al. *Arch Dis Child*. 2008;93(8):701-704

PURPOSE OF THE STUDY. To determine how different respiratory sounds in 2-year-olds (whistles, purrs, and rattles) characterized as wheeze by parents predicted wheeze and asthma diagnosis at 5 years of age. A better understanding of parental descriptions of respiratory symptoms may lead to a more accurate diagnosis of asthma.

STUDY POPULATION. The study subjects were children followed at 2 time points: at ages 2 and 5 years. They were recruited randomly before birth irrespective of history of parental asthma and allergy.

METHODS. Two thousand pregnant women were recruited randomly at 12 weeks' gestation, initially as part of a longitudinal birth cohort designed to relate dietary exposure in early life to asthma outcomes in childhood. Parents filled out questionnaires by mail regarding respiratory symptoms when their children were aged 2 and 5 years. Questions included, "Has your child ever suffered from asthma?" and "Has this been diagnosed by a doctor?" Current wheeze was defined as wheezing that has occurred over the last 12 months. If present, parents were asked to categorize the wheeze by sound, describing it as a whistle, rattle, purr, or other sound. If "other sound" was designated, the subjects were excluded from the analysis.

**RESULTS.** A total of 210 children wheezed as determined by the questionnaire at 2 years of age, and 77% (162) of the parents of these children also returned a questionnaire when the child was 5 years old. Wheeze persisted in 62 of these subjects. At 5 years of age, children with “whistle” at age 2 were more likely to have current wheeze (73% [11 of 15]) with physician-confirmed asthma (67% [10 of 15]). They were also more likely to be on asthma treatment (40% [6 of 15]). This was compared with “rattle,” which only translated to a 34% (33 of 97) incidence of current wheeze at age 5 and 42% (43 of 97) with physician-confirmed asthma, with 11% (11 of 97) on asthma therapy. A description of “purr” at age 2 had similar outcomes to that of rattle. Children with whistle at 2 years of age were more likely to have mothers with asthma, whereas children with rattle and purr were more likely to be exposed to environmental tobacco smoke.

**CONCLUSIONS.** Parents often interpret any respiratory sound as “wheeze.” When respiratory sounds are further characterized as whistle, rattle, or purr, a parent using the terminology “whistle” to describe his or her child’s wheeze was a good predictor of persisting symptoms and was associated with future asthma treatment. Use of terms “rattle” and “purr” did not predict future wheeze particularly well.

**REVIEWER COMMENTS.** In pediatric medicine, physicians must rely on parents for the history. For children with respiratory symptoms, parents often do not understand or know what “wheeze” means. Having parents use terms such as whistle, rattle, or purr to characterize the noise they hear may help physicians make a diagnosis of asthma, especially if the term whistle is used.

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### **Pediatric Prescribing of Asthma Drugs in the UK: Are We Sticking to the Guideline?**

Cohen S, Taitz J, Jaffé A. *Arch Dis Child.* 2007;92(10):847–849

**PURPOSE OF THE STUDY.** Similar to those in the United States, there are asthma-treatment guidelines in the United Kingdom, which were published in 1993 and updated in 1995, 1997, 2003, and 2005. The authors wondered whether the prescribing habits of physicians reflect recommendations in these guidelines.

**STUDY POPULATION.** The population studies was persons in the United Kingdom National Health Service Information database, which includes all prescriptions dispensed by community pharmacists and dispensing doctors.

**METHODS.** Prescriptions for children were reviewed for the years 2000–2006.

**RESULTS.** From 2000 to 2006, the number of prescriptions for bronchodilator syrups decreased 60% from 302 500 to 121 000. The use of steroid-alone inhalers declined 22% from 1 968 000 to 1 525 000, whereas the use of combination steroid/long-acting  $\beta$ -agonist (LABA) inhalers increased sevenfold from 50 000 to 350 000. The percentage of total steroid inhalers prescribed as combination inhalers increased from 2% to 20%.

**CONCLUSIONS.** The authors concluded that the increase in the number of combination inhalers prescribed is not consistent with the guideline recommendations that combination inhalers should only be introduced in those patients with asthma that is not controlled on adequate doses of inhaled steroids.

**REVIEWER COMMENTS.** The authors noted that inhaled bronchodilators have fewer adverse effects and that, although the use of the oral bronchodilators has declined, there are still a large number of prescriptions being written for them. On the basis of other studies, they estimated that only 5% to 10% of children with asthma would qualify for treatment with combined inhaled-steroid/LABA inhalers, yet 20% are prescribed such medications. I suspect that these findings would be the same in the United States. It is useful to reinforce that that there is virtually no indication for treatment with oral bronchodilators, and only children whose condition has failed to respond to treatment with low- to medium-dose inhaled steroids alone should be treated with inhaled-steroid/LABA combinations.

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### **The Impact of Parents’ Medication Beliefs on Asthma Management**

Conn KM, Halterman JS, Lynch K, Cabana MD.

*Pediatrics.* 2007;120(3). Available at: [www.pediatrics.org/cgi/content/full/120/3/e521](http://www.pediatrics.org/cgi/content/full/120/3/e521)

**PURPOSE OF THE STUDY.** To evaluate how parents’ beliefs about asthma medications can influence their adherence to their child’s prescribed therapy and assess whether race/ethnicity is an independent predictor of medication adherence.

**STUDY POPULATION.** The authors conducted a cross-sectional survey of parents of children with asthma in southeast Michigan who were on  $\geq 1$  preventive asthma medication between April 2004 and February 2005. Parents ( $n = 1858$ ) were selected from rural, suburban, and urban areas from 40 primary care pediatric offices, of which 1322 agreed to participate in the telephone sur-

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