

following methods: (1) strict GINA 2006 criteria, (2) GINA without taking into account the exacerbation item, (3) NAEPP criteria, and (4) PA, blinded to the C-ACT score. Children and parents filled out the C-ACT.

RESULTS. Mean age of patients in the study was 7.7 years (28% were ≤ 6 years), 78% had a controller treatment, 58% reported ≥ 1 severe exacerbations, and C-ACT was ≤ 19 in 29.5%. Control was not achieved in 76.5%, 55%, 40%, and 34% according to GINA 2006 guidelines, NAEPP guidelines, GINA 2006 without exacerbation criteria, and PA, respectively. C-ACT was significantly lower in children ≤ 6 years ($P = .002$) or with severe exacerbations ($P < .0001$). According to PA, 89% of patients with a C-ACT > 21 were controlled, and 85% of patients with a C-ACT < 17 were not controlled.

CONCLUSIONS. This study found discrepancies between the various tools used to assess asthma control in children and in the impact of age and exacerbations. The cutoff point of 19 of C-ACT was not associated with the best performance compared with physician assessment. The determination of asthma control by C-ACT alone may underestimate uncontrolled asthma.

REVIEWER COMMENTS. The study supports the use of C-ACT as a supplementary tool in asthma control assessment but points out a problem in relying too heavily on this instrument alone. It provides additional data for consideration of varying the cutoff points for controlled versus uncontrolled asthma. Assessment of lung function, when possible, and evaluation of exacerbations over a longer period of time, may result in better assessment of asthma control.

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Mismatch Between Asthma Symptoms and Spirometry: Implications for Managing Asthma in Children

Schifano ED, Hollenbach JP, Cloutier MM. *J Pediatr.* 2014;165(5):997–1002

PURPOSE OF THE STUDY. To examine the concordance between spirometry and asthma symptoms in assessing asthma severity and beginning therapy by the general pediatrician.

STUDY POPULATION. All children with asthma who were 5 to 19 years of age and were referred to the Spirometry and Aero-inhalant Allergy Testing Clinic at Connecticut Children's Medical Center between 2008 and 2012 by a clinician participating in a study were eligible for inclusion.

METHODS. Spirometry testing was satisfactorily performed in 894 children whose asthma severity had been determined

by their pediatrician using asthma guideline-based clinical criteria. Spirometry-determined asthma severity using national asthma guidelines and clinician-determined asthma severity were compared for concordance using weighted κ coefficients.

RESULTS. Thirty percent of participants had clinically determined intermittent asthma; 32%, 33%, and 5% had mild, moderate, and severe, persistent asthma, respectively. Increasing disease severity was associated with decreases in the forced expiratory volume in 1 second/forced vital capacity (FVC) ratio ($P < .001$), the forced expiratory volume in 1 second/FVC% predicted ($P < .0001$), and the FVC% predicted ($P < .01$). In 319 children (36%), clinically determined asthma severity was lower than spirometry-determined severity. Concordance was 0.16 (95% confidence interval 0.10, 0.23) and, when adjusted for bias and prevalence, was 0.20 (95% confidence interval 0.17, 0.23). When accounting for age, sex, exposure to smoke, and insurance type, only spirometry-determined asthma severity was a significant predictor of agreement ($P < .0001$), with worse agreement as spirometry-determined severity increased.

CONCLUSIONS. Concordance between spirometry and asthma symptoms in determining asthma severity is low even when guideline-based clinical assessment tools are used. Because appropriate therapy reduces asthma morbidity and is guided by disease severity, results from spirometry testing could better guide pediatricians in determining appropriate therapy for their patients with asthma.

REVIEWER COMMENTS. Yogi Berra once said, "It's like déjà vu all over again." I really think that this quote is pertinent here. For years, national asthma guidelines have recommended the use of spirometry in pediatric patients with asthma who can perform this maneuver. This recommendation is not always followed appropriately. In this current investigation, the authors report that even when clinical criteria for the determination of asthma are used correctly, spirometry testing has added value in management. Specifically, they demonstrated that the use of spirometry testing would have resulted in an assignment of a higher asthma severity category in 36% of the children in their study. This information can certainly affect the overall management of asthma in the pediatric population. So I hope I am preaching to the choir here in emphasizing that increasing access to spirometry testing, whether in the pediatrician's office or through a consultant to a specialist, should continue to be a realistic goal to improve the overall asthma care for children.

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