Parenting Asthmatic Children: Identification of Parenting Challenges

PURPOSE OF THE STUDY. To identify the child behavior and asthma management tasks that parents report as being difficult to manage.

STUDY POPULATION. Cross-sectional cohort of 255 parents of children with asthma 2 to 10 years of age.

METHODS. Parents completed 5 online multidimensional questionnaires, that is, (1) Family Background Questionnaire, to assess family demographic features and socioeconomic status; (2) Strengths and Difficulties Questionnaire (SDQ), to identify children's emotional and behavioral problems; (3) Parenting Scale, a 30-item questionnaire to measure dysfunctional discipline styles such as laxness, overreactivity, and verbosity; (4) Asthma Behavior Checklist (ABC), an instrument developed specifically for the study to assess 22 behaviors that parents with children with asthma often manage (eg, child refuses to take medication to school); and (5) Asthma Parent Tasks Checklist (APTC), an instrument designed for the current study to assess 17 asthma management tasks that parents often manage (eg, identifying child's asthma triggers). Statistical analysis was performed by using 1-way analysis of variance.

RESULTS. On the basis of published cutoff values for SDQ-assessed total difficulties, parents rated their children as follows: 20.9% in the clinical range, 13.7% in the borderline range, and 65.5% in the normal range. Children with scores in the abnormal range on the SDQ had higher ABC extent scores than did children with scores in the normal range. Results for parenting and asthma behavior difficulties indicated low levels of dysfunctional parenting; however, a substantial minority (22.7%) of parents were rated in the clinical range. Parents whose total Parenting Scale scores placed them in the clinical range reported more asthma behavior difficulties, compared with those who scored in the nonclinical range.

CONCLUSIONS. An appropriate parenting intervention program needs to target behavior management skills, in addition to the application of these behavior management principles to asthma management. The ABC and APTC could be used in addition to parental asthma education to facilitate discussions with parents regarding the management of their child's asthma and to allow health care professionals and parents to focus together on specific action plans. The ABC and APTC also could be used to evaluate the impact of implemented interventions.

REVIEWERS' COMMENTS. Appropriate parenting interventions targeting basic behavior and asthma management skills and supplying tools for applying these behavior management principles are ideal. The authors recognize the concern of parents in entrusting their children's schools and other caregivers, and research focused in this direction may provide increased confidence for parents and overall improvement in the quality of life for children with asthma.

Patterns of Asthma Control Perception in Adolescents: Associations With Psychosocial Functioning
Rhee H, Belyea MJ, Elward KS. J Asthma. 2008;45(7):600–606

PURPOSE OF THE STUDY. To identify and to describe the patterns of asthma control perception in relation to actual symptom reports in adolescents and to compare the group with accurate control perception with the group with inaccurate perception.

STUDY POPULATION. A group of 126 adolescents with asthma, 13 to 20 years of age, were interviewed prospectively.

METHODS. Patterns of control perception were constructed on the basis of participants’ ratings of their perceptions of asthma control and self-reported asthma symptoms by using latent class analysis. Analyses of variance and multinomial logistic regressions were computed for group comparisons.

RESULTS. Participants were classified into 4 groups according to the patterns of control perception. Accurate groups included those whose asthma was well controlled (62%) or poorly controlled (7%), and inaccurate groups included those with nighttime symptoms (25%) or daytime symptoms (6%). Minority participants (P < .001) and those with low socioeconomic status (P < .001) were more likely to be represented in the inaccurate group than were their counterparts. The well-controlled accurate group consistently reported higher levels of asthma-related knowledge (P = .02), more-positive attitudes toward asthma (P < .001), fewer barriers to self-management (P = .04), and higher quality of life (P < .001) than did the inaccurate group.

CONCLUSIONS. This study demonstrated that accuracy of asthma control perception could be classified into 4 categories on the basis of patterns of various asthma symptoms. Adolescents’ tendency toward underperception was evident. The inaccurate groups are at greater risk for psychosocial impairments. This study underscores the importance of an intervention that improves the accuracy of asthma control perception in adolescents while...
Effects of Improved Home Heating on Asthma in Community Dwelling Children: Randomised Controlled Trial

**PURPOSE OF THE STUDY.** To assess whether nonpolluting, more-effective home heating (heat pump, wood pellet burner, or flued gas) has a positive effect on the health of children with asthma.

**STUDY POPULATION.** A randomized, controlled trial of 409 children, 6 to 12 years of age, with doctor-diagnosed asthma was performed in the household setting in 5 areas in New Zealand.

**METHODS.** Nonpolluting, more-effective home heaters were randomly installed in the intervention houses. Outcome measurements were made during the winter months of 2005 (baseline) and were repeated after the intervention in the winter of 2006. The primary outcome was change in lung function (peak expiratory flow rate and forced expiratory volume in 1 second [FEV₁]). The secondary outcomes were reported asthma symptoms, scores for lower respiratory tract symptoms from diaries, daily asthma drug use, health care utilization, and days of missed school. Nitrogen dioxide levels and temperatures were measured in the living room and the child’s bedroom.

**RESULTS.** Of 409 households, 349 (85%) remained in the study and were randomly assigned, with 175 assigned to the intervention group and 174 to the control group. After the intervention, lung function tests showed nonsignificant improvement in daily FEV₁ (difference in mean FEV₁: 130.7 mL [95% confidence interval [CI]: −20.3 to 281.7 mL]; P = .09) and peak expiratory flow rate (difference in mean peak expiratory flow rate: 12.29 l/min [95% CI: −4.57 to 29.15 l/min]; P = .15). However, on the basis of parental reports and diaries, children in the intervention group had significant reductions in asthma symptoms and improved well-being, compared with the control group. They had fewer reports of poor health (adjusted odds ratio [OR]: 0.48 [95% CI: 0.31–0.74]; P < .001), less sleep disturbed by wheezing (OR: 0.55 [95% CI: 0.35–0.85]; P < .001), less dry cough at night (OR: 0.52 [95% CI: 0.32–0.83]; P = .01), and reduced scores for lower respiratory tract symptoms (OR: 0.77 [95% CI: 0.73–0.81]; P = .013). The intervention group also had 1.8 fewer days (95% CI: 0.11–3.13 days; P < .04) off school, 0.4 fewer visits (95% CI: 0.11–0.62 visits; P = .01) to a doctor for asthma, and 0.25 fewer visits (95% CI: 0.09–0.32 visits; P = .01) to a pharmacist for asthma than did the control group. Exposure to low temperatures was 50% less in the intervention group (95% CI: 0.49–1.93; P = .001). The mean temperature of the control households was lower than that of the intervention households by 1.10°C (95% CI: 0.54–1.67°C; P < .001) in the living room and 0.57°C (95% CI: 0.05–1.08°C; P = .001) in the child’s bedroom. Indoor nitrogen dioxide levels were significantly reduced in the intervention group, compared with the control group, in the living room (geometric mean: 8.5 vs 15.7 g/m³; P < .001) and the child’s bedroom (7.3 vs 10.9 g/m³; P < .001).

**CONCLUSIONS.** Installing nonpolluting, more-effective heating in the households of children with asthma did not significantly improve lung function but did significantly reduce symptoms of asthma, days off school, health care utilization, and exposure to nitrogen dioxide.

**REVIEWERS COMMENTS.** Asthma is aggravated by the outdoor and indoor environments. Indoor temperatures, damp, mold, and pollutants have been implicated as important factors. This study shows the impact of nonpolluting, home-heating systems on symptoms in children with asthma. In this randomized, controlled trial, significant improvements in frequency and severity of symptoms were noted and there were trends toward improved lung function. These trends toward improved health effects should increase public awareness of this intervention while additional studies are undertaken.

**Association of Early Life Wheeze and Lung Function**

**PURPOSE OF THE STUDY.** To calculate the age-specific incidence of wheeze and to determine whether wheezing at par-
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Harvey L. Leo

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