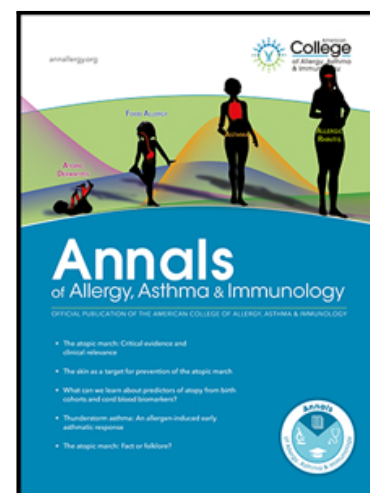


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PII: S1081-1206(18)30667-7
DOI: <https://doi.org/10.1016/j.anai.2018.08.007>
Reference: ANAI 2665



To appear in: *Annals of Allergy, Asthma Immunology*

Received date: 28 June 2018
Revised date: 10 August 2018
Accepted date: 13 August 2018

Please cite this article as: Giselle Mosnaim , Andrew H. Liu , Laura C. Simone , Madeleine Shalowitz , Ewa H. Schafer , Sindhura Bandi , Christopher D. Codispoti , James J.L. Mateka , Laurence Greene , Tamar Sapir , Parent-Physician Perceptions of Shared Decision-Making and Care Coordination for Children with Asthma, *Annals of Allergy, Asthma Immunology* (2018), doi: <https://doi.org/10.1016/j.anai.2018.08.007>

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Parent-Physician Perceptions of Shared Decision-Making and Care Coordination for Children with Asthma

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Acronyms: QI, quality improvement

Key words: Pediatric asthma; parent-physician perceptions, shared decision-making; care coordination; asthma education

Disclosures: Dr. Mosnaim has received research grant support from GlaxoSmithKline and Propeller Health; owns stock options in Electrocore; and has served as a consultant and/or member of a scientific advisory board for Electrocore, GlaxoSmithKline, Teva, Novartis, Astra Zeneca, Boehringer Ingelheim, and Propeller Health. Dr. Liu has served on speaker's bureaus for GlaxoSmithKline and Merck Sharp & Dohme Pharmaceuticals. The other authors have no relevant conflicts of interest.

Funding Source: The study reported in this article was part of a continuing medical education and quality improvement program funded by an independent educational grant from Genentech. The grantor had no role in the study design, execution, analysis, or reporting. The authors reported the study findings in a featured poster presentation at the AAAAI/WAO Joint Congress in Orlando, FL on March 5, 2018.

Author Contributions

- **Study conception/design:** GM, AHL, LCS, MS, SB, CDC, TS, LG, JM, ES
- **Data generation:** LCS, LG, JJLM, GM, AHL, MS, EHS, SB, CDC, ES
- **Analysis and interpretation of the data:** LG, LCS, TS, GM, AHL, MS, EHS, SB, CDC
- **Preparation and critical revision of manuscript:** All authors
- **Approval of final manuscript:** All authors

In conducting initiatives to improve care quality for children with asthma, a useful approach begins with identifying alignments and discordances in perceptions of parents and providers. Studies applying this approach have generally focused on parent-provider perceptions of children's asthma control and medication use.¹⁻³ A need exists for assessing the 2 groups' perceptions of collaborative patient-centered practices.⁴⁻⁸ In the context of a quality improvement (QI) program in 2 health systems, we compared parents' and interdisciplinary physicians' perceptions and self-reported practices regarding pediatric asthma education, shared decision-making, and care coordination.

The QI program and survey study methods were reviewed by both systems' institutional review boards, which granted exempt status. The program participants were 22 pediatricians and 10 allergists/immunologists who practice in a university medical center and a community-based teaching hospital in the Chicago metropolitan area. During consecutive appointments with asthma patients aged 6–12 years, each physician recruited up to 5 parents to participate in the study. Parents who verbally agreed to informed consent completed the survey after the appointment.

The parent survey included 6 statements for indicating whether the physicians regularly perform key practices in asthma education and shared decision-making (Figure 1). We derived the statements from national asthma guidelines and instruments for measuring shared decision-making.^{9,10} On a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), parents rated the performance of their child's pediatrician or allergist/immunologist. The physician survey included the same 6 statements. On the same 5-point scale, each physician rated her/his own performance, with instructions to reflect on recent appointments with the children whose parents completed the survey.

The physicians also rated how often 6 care coordination practices and outcomes occur for pediatric asthma patients (5-point Likert scale: 1 = never, 5 = always). The items assessed the physician groups' perceptions of how often pediatricians make appropriate referrals to allergists/immunologists, and how often the groups receive helpful information from each other about shared patients, contact each other to discuss referred patients, and know about shared patient visits with other physicians. In addition, the survey assessed the physicians' perceptions of how often their communication about shared patients reflects a "team-based" approach, and how often interdisciplinary care coordination improves patient outcomes.

We conducted chi-square or Fisher's Exact tests to assess between-group differences in the frequency of pooled ratings of 4 and 5 on the scales for (1) agreement with the statements about the physicians' regular performance of the asthma education and shared decision-making practices (4 = agree, 5 = strongly agree); and (2) how often the care coordination practices or outcomes occurred (4 = most of the time, 5 = always). A p-value less than 0.10 was considered significant. For each survey item, we subjectively designated *discordant* perceptions by between-group differences of at least 10% in ratings of 4 or 5.

Surveys were completed by all 32 physicians and 150 mothers or fathers; among their children with asthma, mean age was 9 years, 60% were female, 52% were Caucasian, and 27% were African-American. Concordant perceptions about the asthma education and shared decision-making practices were evidenced by similar percentages of parents, pediatricians, and allergists/immunologists who agreed or strongly agreed that the physicians regularly (1) help parents understand how to avoid their children's asthma triggers (75% parents, 77% pediatricians, and 80% allergists/immunologists); and (2) review asthma action plans (74%, 77%, and 80%, respectively; Figure 1).

Discordant perceptions were evidenced by the greater percentage of pediatricians (95%) than parents (72%) who agreed or strongly agreed that the physicians regularly explain the benefits and risks of asthma medications. A similar pattern was observed in the percentages of pediatricians (100%) and parents (80%) who agreed or strongly agreed that the physicians regularly explain differences between controller and quick-relief medications. Discordances were also reflected by the percentages of respondents who agreed or strongly agreed that the physicians regularly ask parents or their children to (1) demonstrate inhaler or nebulizer technique (66% parents, 14% pediatricians, and 70% allergists/immunologists); and (2) explain their child's asthma action plans (71%, 36%, and 50%, respectively). The children and their parents received care from both groups of physicians, which may explain the low percentage of pediatricians who reported regularly demonstrating inhaler or nebulizer technique and the alignment of parent and allergist/immunologist perceptions regarding this practice.

A significantly greater percentage of pediatricians (86%) than allergists/immunologists (50%) indicated that pediatricians make appropriate and timely referrals of pediatric asthma patients most of the time or always. The groups also had significantly discordant perceptions

about frequently receiving helpful information from each another regarding referred patients (82% pediatricians and 50% allergists/immunologists) and initiating communication about referred patients (23% pediatricians and 90% allergists/immunologists). Compared with pediatricians, nonsignificantly greater percentages of allergists/immunologists indicated that interdisciplinary coordination reflects a team-based approach and results in improved patient outcomes.

Among children with asthma, their caregivers, and their physicians, discordant perceptions have been reported for asthma control and medication use.¹⁻³ The present study is unique in comparing parents' and interdisciplinary physicians' perceptions and self-reported practices regarding pediatric asthma education, shared decision-making, and care coordination. Practices such as educating parents about their children's asthma medication differences, risk, and benefits offer the potential for positive outcomes, including greater satisfaction with care, more appropriate treatment decision-making, and a strong therapeutic alliance that may enhance adherence.^{7,8}

In the context of a QI program, we presented the survey results to the 32 participating physicians during an accredited educational program. Upon reflecting on the discordant perceptions, the physicians developed action plans for improvement. For example, in response to feedback on their discordant perceptions about asthma education and shared decision-making practices, they developed strategies to improve the visibility of patients' asthma action plans in the electronic medical record. In response to feedback on the survey results regarding care coordination, the physicians implemented a new workflow process to provide the pediatricians with increased direct phone-line access to the allergists/immunologists.

Because the pediatricians and allergists/immunologists at each institution share clinic space and staff, they have many shared patients. However, due to time and budgetary constraints, the surveys were completed without considering whether the physicians collaborated on the care team of each family enrolled. Future QI initiatives should group participants to enable subanalysis of concordance within care teams. Furthermore, these findings are limited by the small sample of physicians and the narrow scope of asthma education, shared decision-making, and care coordination practices. Among other dimensions of shared decision-making, for example, future studies might assess the quality of decisions regarding specific treatment approaches; the self-reported value of the practice among children, parents, and providers; and, ultimately, the impact of shared decision-making on asthma treatment outcomes. Nonetheless, we view these survey study methods and findings as useful guidance for designing assessments in scalable QI initiatives for interdisciplinary pediatric asthma care teams.

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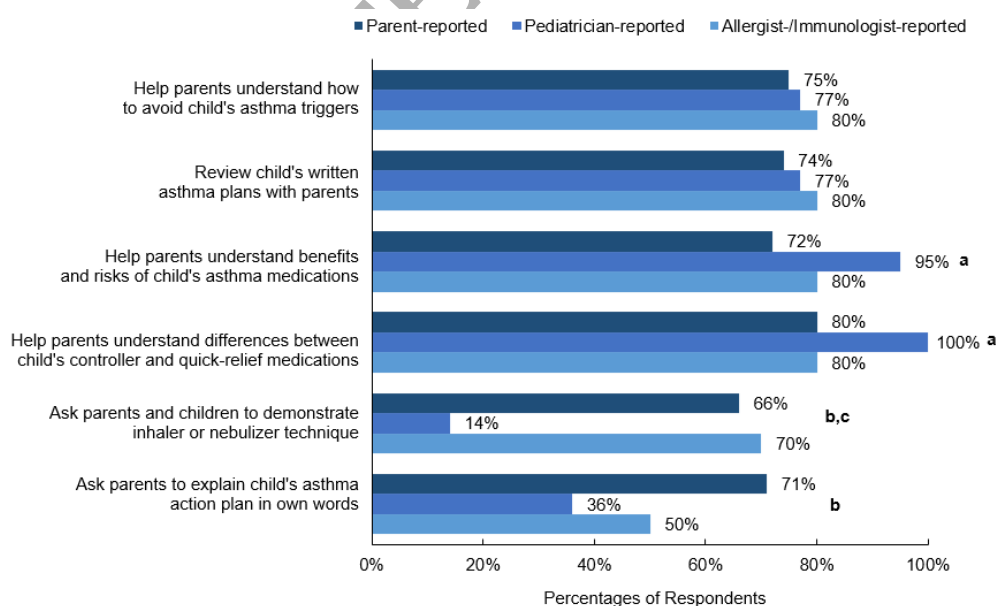


Figure 1. Percentages of respondents who *agreed* or *strongly agreed* that the physicians perform the asthma education and shared decision-making practices regularly.

^a $p = 0.02$, parents compared with pediatricians

^b $p < 0.001$, parents compared with pediatricians

^c $p = 0.01$, pediatricians compared with allergists/immunologists