Published in final edited form as:

J Pediatr. 2009 February ; 154(2): 290–295. doi:10.1016/j.jpeds.2008.08.014.

ORGANIZATIONAL ATTRIBUTES OF PRACTICES SUCCESSFUL AT A DISEASE MANAGEMENT PROGRAM

Michelle M. Cloutier, MD^{1,2,*}, Dorothy B. Wakefield, MS¹, John Tsimikas, PhD³, Charles B. Hall, PhD⁴, Howard Tennen, PhD⁵, and Kevin Brazil, PhD⁶

¹Department of Pediatrics, University of Connecticut Health Center, Farmington, CT

²Asthma Center, Connecticut Children's Medical Center, Hartford, CT

³Department of Statistics and Financial/Actuarial Mathematics, The University of the Aegean, Samos, Greece

⁴Albert Einstein College of Medicine, Bronx, NY

⁵School of Medicine, University of Connecticut Health Center, Farmington, CT

⁶Saint Joseph's Health System Research Network, Hamilton, On, CA

Abstract

Objective—To assess the contribution of organizational factors to implementation of three asthma quality measures: enrollment in a disease management program, development of a written treatment plan and prescribing severity-appropriate anti-inflammatory therapy.

Study design 138 pediatric clinicians and 247 office staff in 13 urban clinics and 23 non-urban, private practices completed questionnaires about their practice's organizational characteristics (e.g. leadership, communication, perceived effectiveness, job satisfaction).

Results—94% of clinicians and 92% of office staff completed questionnaires. When adjusted for confounders, greater practice activity and perceived effectiveness in meeting family needs was associated with higher rates of Easy Breathing enrollment, whereas higher scores for three organizational characteristics--communication timeliness, decision authority and job satisfaction--were associated both with higher numbers of enrolled children and a greater number of written treatment plans. None of the organizational characteristics were associated with greater use of anti-inflammatory therapy.

Conclusions—Three organizational characteristics predicted two quality asthma measures - use of a disease management program and creation of a written asthma treatment plan. If these organizational characteristics are amenable to change, our results could help focus interventions in areas of effective and acceptable organizational change.

Practice guidelines for the management of asthma were first released in 1991 by the National Asthma Education and Prevention Program (NAEPP) (1). Despite 2 updates and recent studies

*Correspondence and Requests for Reprints should be addressed to: Michelle M. Cloutier, M.D., Asthma Center, Connecticut Children's Medical Center, 282 Washington Street, Hartford, CT 06106, Telephone #: (860) 545-9442 Fax #: (860) 545-8979, E-mail: mclouti@ccmckids.org.
Edited by RW and WFB

The authors declare no conflicts of interest.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

that demonstrate the effectiveness of these guidelines in reducing asthma morbidity, the NAEPP guidelines have not been widely adopted by primary care clinicians (2-7).

Numerous barriers impede the implementation of practice guidelines in the primary care setting (8-11). Asthma is a chronic disease and chronic disease management requires a team effort within a practice as well as systems and processes for managing chronic disease (12).

The chronic care model is a functional framework for health care that is evidence-based, population-based and patient-centered (13,14), but few systematic studies have examined its organizational aspects. In limited studies, a few organizational characteristics such as leadership, communication, role clarity and the perceived effectiveness of the team at meeting patient's needs appear to be important in care coordination and at improving management of patients with chronic diseases (15-17). Little is known, however, about which characteristics are most effective in implementing practice guidelines in primary care settings and which might be amenable to change.

Easy Breathing is an NAEPP-based asthma management program for primary care clinicians that provides a standardized, systematic, evidence-based approach to asthma with decision support (4,18). In this study, we examined the contribution of organizational characteristics to the successful implementation of this asthma management program. We assessed 3 aspects of asthma quality of care related to asthma management: 1) the number of children enrolled by a clinician over time in Easy Breathing, 2) the number of enrolled children with asthma who received a written asthma treatment plan, and 3) the number of children with a written asthma treatment plan that adhered to the NAEPP guidelines for use of anti-inflammatory therapy in children with persistent asthma.

We hypothesized that enrollment of children in the asthma program and the creation of a written treatment plan are influenced by practice characteristics and by organizational factors within the practice. We also hypothesized that the prescription of anti-inflammatory therapy is a clinician attribute, based on the clinician's knowledge and practice beliefs.

METHODS

Study Population

Practices were eligible for study entry if they had been trained and were using the Easy Breathing program. Training in the Easy Breathing program consisted of a one-hour presentation about the goals of Easy Breathing, the expected outcomes, the role of each staff member and clinician in implementation of the program and how to implement the program (18). All program forms and materials were supplied and program support was provided through bi-weekly visits by a program coordinator. Copies of all program-generated materials were provided to study personnel for data entry and assessment of data quality, with feedback and benchmarking reports supplied to the individual practices.

Clinicians and staff from 36 eligible, primary care pediatric practices in Connecticut agreed to participate and completed a series of questionnaires designed to assess staff and clinician perceptions regarding organizational characteristics. Questionnaires were completed by all clinicians and staff during a lunchtime session. Incentives to complete the questionnaires consisted of a drawing for a \$25 gift card to a local restaurant or bookstore. Questionnaires were left for clinicians and staff who did not attend the session.

Outcome Measures

The Easy Breathing program has been described (14,18). Briefly, office staff ask parents to complete a 15-item Easy Breathing Survey that contains 4 questions validated for the diagnosis

of asthma (19). All children within a practice, regardless of their asthma status or the reason for their visit, are eligible to complete a Survey, which is then reviewed by the clinician. For children with asthma, the clinician determines asthma severity using an assessment tool (20) adapted from the NAEPP guidelines and creates a written, severity-appropriate Asthma Treatment Plan. Templates of Asthma Treatment Plans that include what treatments to use daily and during an asthma exacerbation and when to call the practice are provided to the practice. A child is considered “enrolled” in Easy Breathing if the parent completes an Easy Breathing Survey and the clinician determines whether the child has asthma. A child is considered to “have a treatment plan” when the family is given written instructions on how to manage their asthma daily and when sick. The written treatment plan is considered to be “adherent” to the NAEPP guidelines when the prescribed therapy is consistent with the clinician-determined asthma severity according to the NAEPP guidelines. We have previously demonstrated sustained decreases in hospitalization rates, emergency room visits for asthma and urgent care outpatient visits in large numbers of ethnically and socio-economically diverse children enrolled in Easy Breathing, when they are given a written asthma treatment plan and when that treatment plan is consistent with the national asthma guidelines for prescribing anti-inflammatory therapy (4).

Practice and Organizational Characteristics

Practice Characteristics—Information about practice characteristics was obtained from the office manager and consisted of the ratio of full time (defined as 40 hrs per week, FTE) staff to full time clinicians (staff-to-clinician ratio), the number of appointments/hour/clinician, insurance profile (percent of patients with public insurance), practice management and ownership, patient volume/week, experience with other practice guidelines and programs, and quality improvement activities.

Organizational Characteristics—Organizational characteristics were examined using the previously validated, Primary Care Organizational Questionnaire (PCOQ) (21). Forty-two items examined the 6 scales of leadership, communication within and between groups in the practice (i.e. clinician-to-clinician and clinician-to-staff), communication timeliness, perceived effectiveness in the technical quality of care and in meeting family needs, and conflict resolution (22,23). Quality of work life was related to 3 additional scales - job satisfaction, decision-making responsibility (decision authority), and psychological job demands - perceptions important in determining staff turnover and teamwork (24). An average score was generated for each scale which was then combined with the scores from the other clinicians and staff in the practice and averaged to yield a score for each scale in each practice. The estimated Cronbach alpha was at least 0.7 for each scale and the variability characteristics of the PCOQ demonstrate that it is valid for use as a practice-level questionnaire (21).

The study was approved by the Institutional Review Boards at the University of Connecticut Health Center and Connecticut Children’s Medical Center. Returning of the questionnaires by clinicians and staff was considered evidence of consent.

Statistical Analysis

The Easy Breathing enrollment rate/clinician was defined as the total number of children who completed an Easy Breathing Survey per clinician. Treatment Plan use/clinician was defined as the number of children with asthma who had a written treatment plan divided by the number of children with asthma enrolled by the clinician. Adherence to national guidelines for use of anti-inflammatory therapy/clinician was defined as the number of written treatment plans for children with persistent asthma with a severity-appropriate anti-inflammatory drug (usually an inhaled corticosteroid (ICS)) divided by the number of written treatment plans for children

with persistent asthma. Analyses were performed over the time period July 1, 2003 to June 30, 2004 and were adjusted for FTE status.

Two sample t-tests were used to test for differences in means between urban clinics and private practices for each organizational characteristic. In order to account for the nesting of clinicians and staff in a practice, multilevel negative binomial and binomial models (25,26) were used to model the 3 outcome measures per FTE clinician as a function of the practice-specific organizational characteristic. The number of children enrolled in Easy Breathing was modeled using the negative binomial distribution because the dependent variable is a count and these models allow for greater variability than the Poisson models usually used for count data. The number of written asthma treatment plans was modeled using the binomial distribution. Because the number of NAEPP-adherent written asthma treatment plans for persistent asthma was high (>90%), we used Bernoulli models. For all models, random effects were used to take into account the nesting of clinicians within practices. Covariates included the practice's insurance profile, the staff-to-clinician ratio, and the clinician's highest degree (MD vs other clinician degree (e.g. APRN (advanced practice nurse), PNP (pediatric nurse practitioner) or PA (physician's assistant))). For each of the quality measures, results are presented as the relative rate (number of surveys) or odds ratio (written treatment plans and adherence to guidelines) and 95% confidence interval (CI) for the relative rate or odds ratio for each organizational characteristic adjusted for the staff-to-clinician ratio, the percent public insurance and clinician status.

All models were fit using SAS PROC NLMIXED version 9.1 (SAS Institute Inc, Cary, NC). $P < .05$ indicates a statistically significant effect.

RESULTS

Of the 46 invited practices, three urban clinics (23%) and 7 private practices (30%) declined. This resulted in 13 participating urban clinics and 23 participating, non-urban private practices. There were no statistically significant differences in practice size, overall structure, or clinician demographics between participating practices and non-participating practices. The questionnaire response rate for clinicians (physicians and other clinicians) was 94% (138 out of 147) and for office staff (registered nurses, office managers, licensed practical nurses, medical assistants, receptionists, and billing personnel) was 92% (247 out of 269) (Table I). There were no statistically significant differences between clinicians in urban clinics and private practices with respect to age, sex, race, full/part-time status, and years since obtaining highest degree.

Participating practices ranged in size and varied in patient demographics. Urban clinics by definition were located in areas where at least 20% of households had incomes below the federal poverty level with a population density of greater than 1000 people per square mile and served largely a low-income, Medicaid population. The remaining (privately owned, non-urban) practices served largely a commercially insured population (percent of patients with public insurance $72 \pm 22\%$ in urban clinics vs $29 \pm 19\%$ in private practices, mean $\pm$ SD). None of the private practices served rural areas. The overall staff-to-clinician FTE ratio was 1.7 ± 0.8 (range 0.4 - 4.0). There was no difference in the staff-to-clinician ratio between urban clinics and private practices (1.54 ± 0.87 vs 1.77 ± 0.78) ($p=0.42$). However, compared with private practices, urban clinics had a higher percentage of non-physician clinicians compared with physicians (63% vs 20%, $p=0.01$). On average, physicians saw four more patients per half-day clinic session than the other clinicians, and physicians in private practices saw four more patients per clinic session than their urban counterparts.

Practice Characteristics and Easy Breathing Enrollment Rates

The distribution of Easy Breathing enrollment rates was skewed with values ranging from 0 to 661 enrolled children/FTE/year (mean = 125 enrolled children/FTE/year; median = 86). Practice size (the total number of clinician and staff FTEs) did not affect any of the three quality measures. Higher practice activity (the number of appointments/hour or the number of patients seen per week) was associated with higher enrollment rates ($p=0.05$) but not with higher use of a written asthma treatment plan or greater adherence to the guidelines for using anti-inflammatory therapy.

Organizational Characteristics and Their Relation to Quality Measures

The distributions of the organizational characteristics were roughly symmetric. Mean scores for the 9 scales of the PCOQ in the private practices were higher than scores for urban clinics with one exception (Table II). There was no difference in decision authority between urban clinics and private practices. The differences in mean PCOQ scores for urban compared with private practices were observed both for clinicians and for staff in both locations. Scores, however, for physicians were similar to the scores reported by the non-physician clinicians regardless of location.

At the level of the practice, when controlling for the percent public insurance, clinician type (MD vs other clinician), and staff-to-clinician ratio, higher scores on communication timeliness, decision authority and job satisfaction were associated with higher Easy Breathing enrollment rates (Table III) and the completion of a written asthma treatment plan. In addition, perceived effectiveness related to meeting family needs was associated with higher Easy Breathing enrollment rates. Scores on other organizational characteristics were not associated with higher enrollment rates or with the creation of a written asthma treatment plan. As predicted, organizational characteristics were not associated with use of anti-inflammatory therapy and in particular the use of ICS in accordance with national guidelines.

Variations in Organizational Characteristics Between Staff and Clinicians

On average, clinicians reported higher scores than staff for communication within the group (mean difference = 0.36 points, $p<0.0001$), communication timeliness (0.16 points, $p=0.014$), conflict resolution (0.21 points, $p=0.01$), and decision authority (0.53 points, $p<0.0001$), whereas staff reported higher scores than clinicians for perceived effectiveness in meeting family needs (0.25 points, $p<0.0001$), and in job-related psychological demands (0.23 points, $p=.016$). The differences between staff and clinician responses in the organization attributes were not associated with the number of children enrolled in Easy Breathing or the use of anti-inflammatory therapy.

DISCUSSION

Our results demonstrate that four organizational characteristics – communication timeliness within a practice, the perceived effectiveness of the practice in meeting family expectations and in the technical aspects of the practice, responsibility for decision-making (decision authority) and job satisfaction - were positively associated with enrollment of children in Easy Breathing, and three of these four organizational characteristics, namely, communication timeliness, decision authority and job satisfaction, were also associated with completion of a written asthma treatment plan. As predicted, none of the organizational characteristics were associated with the appropriate prescribing of anti-inflammatory therapy by primary care clinicians.

We used the PCOQ to measure practice-level characteristics in this study. Our results suggest that, for these practices and this disease management program, a small number of

organizational characteristics were associated with two practice-level quality of care measures. These same characteristics were important in both urban clinics and private practices and in both large and small practices. Communication timeliness, perceived effectiveness, decision authority and job satisfaction have also found to be important in other groups and settings and may, therefore, be fundamental in the systems management of chronic disease (13,15-17,27). If they are important to the functioning of the practice in quality improvement, then directed interventions in these specific areas could be of benefit in helping offices to better manage chronic diseases. Thus, results from this project could help to focus interventions in areas of system change that are likely to be effective. Focused change rather than broad-stroked general systems change may also be more acceptable to the busy practitioner who is committed to improving care.

Our study also suggests, however, that not all aspects of disease management are influenced or affected by organizational characteristics. In fact, it appears that at least one quality measure – the decision to prescribe anti-inflammatory therapy – is not influenced by practice characteristics; this quality measure may be determined by the personal attributes of the individual clinician and may be unrelated to the characteristics of the practice. We did not, however, compare the prescribing of anti-inflammatory therapy by practice owners (i.e. senior partners) who might be more likely to “set the tone” of the practice to other clinicians in the practice. We have also found that many clinicians feel that they are prescribing appropriate anti-inflammatory therapy even when they are not (18); this study confirms that this behavior can be separated from use of other aspects of practice management.

Organizational characteristics and clinician personal attributes are two important elements within the much larger and broader area of the health care system but they are not the only ones. Successful implementation of disease management guidelines will most likely require other elements including information technology, health delivery system enhancements, organizational partnerships, and funding mechanisms to name a few (28).

This study has a number of limitations. We recruited practices of varying types and sizes from several areas in Connecticut. The demographics of the 36 recruited practices were similar to the demographics of the other practices in the area but their organizational characteristics may not be representative of other urban and private practices in the United States. Our response rate was excellent but some staff expressed concern about anonymity and thus, their responses may not have been entirely unbiased. We used a validated instrument (PCOQ) and a program of proven effectiveness (Easy Breathing) but obtained data over a one year period and thus, we are able to only report associations. Finally, we averaged individual scores for each of the characteristics within a practice. We did observe some variation in scores for some organizational characteristics between staff and clinicians. The within-practice consistency of responses, however, was more striking than the variability suggesting that clinicians and staff shared similar perceptions regarding each of the various organizational characteristics. Furthermore, the instrument that we used measured practice level attributes rather than individual attributes.

Three organizational characteristics were associated with implementation of two quality measures regarding childhood asthma - enrollment in the Easy Breathing asthma management program and distribution of a written asthma treatment plan and one additional organizational characteristic was associated with enrollment in Easy Breathing. Whether any of these characteristics are amenable to change and whether changes in these characteristics will enhance a practice's use of disease management await further study. Use of a disease management program and adherence to guidelines is one example of a quality-improvement activity, which is a component of the Program for Maintenance of Certification that is currently being developed by the American Board of Pediatrics (29). An understanding of a practice's

organizational characteristics and targeted interventions to change specific organizational characteristics may be important to primary care practices in the near future.

Acknowledgements

We are grateful to Trudy Lerer and Autherene Grant for data analysis and entry, Rose Webster-Pacheco for administrative support, and the practices, clinicians, and staff who participated in this project.

This work was supported by RO1 HL70785 from the National Heart, Lung, and Blood Institute.

References

1. National Institutes of Health, National Heart, Lung, and Blood Institute. Guidelines for the Diagnosis and Management of Asthma. Washington, DC: US Dept of Health and Human Services; 1991. NIH Publication No. 91-3042
2. National Institutes of Health, National Heart, Lung, and Blood Institute. Guidelines for the Diagnosis and Management of Asthma. Washington, DC: US Dept of Health and Human Services; Oct. 1997 NIH Publication No. 97-4053
3. National Institutes of Health, National Heart, Lung, and Blood Institute. Guidelines for the Diagnosis and Management of Asthma Expert Panel Report-3. Washington, DC: US Dept of Health and Human Services; Aug. 2007 NIH Publication No. 08-4051
4. Cloutier MM, Hall CB, Wakefield DB, Bailit H. Use of asthma guidelines by primary care providers reduces hospitalizations and emergency department visits in poor, minority, urban children. *J Pediatr* 2005;146:591–597. [PubMed: 15870660]
5. Legorreta AP, Liu X, Zaher CA, Jatulis DE. Variation in managing asthma: experience at the medical group level in California. *Am J Managed Care* 2000;6:445–453.
6. Mangione RS, DeCistofaro AH, Setodji CM, Kessey J, Klein DJ, Adams JL, et al. The quality of ambulatory care delivered to children in the United States. *N Engl J Med* 2007;357:1515–23. [PubMed: 17928599]
7. Reeves MJ, Hohm SR, Korzeniewski SJ, Brown MD. Asthma care and management before an emergency department visit in children in western Michigan: how well does care adhere to guidelines. *Pediatrics* 2006;117(4pt 2):S 118–26.
8. Rundall TG, Shortell SM, Wang MC, Casalino L, Bodenheimer T, Gillies RR, et al. As good as it gets? Chronic care management in nine leading US physician organizations. *B Med J* 2002;325:958–961.
9. Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, et al. Why don't physicians follow clinical practice guidelines? *JAMA* 1999;282:1458–1465. [PubMed: 10535437]
10. Wagner EH, Austin B, Von Korff M. Improving outcomes in chronic illness. *Managed Care Quarterly* 1996;4:12–25. [PubMed: 10157259]
11. Committee on Quality of Health Care in America, Institute of Medicine: Crossing the Quality Chasm: A new health system for the 21st Century. Washington DC: National Academy Press; 2001.
12. Li R, Simon J, Bodenheimer T, Gillies RR, Casalino L, Schmittiel J, et al. Organizational factors affecting the adoption of diabetes care management processes in physician organizations. *Diabetes Care* 2004;27:2312–2316. [PubMed: 15451893]
13. Piatt GA, Orchard TJ, Emerson S, Simmons D, Songer TJ, Brooks MM, et al. Translating the chronic care model into the community. *Diabetes Care* 2006;29:811–817. [PubMed: 16567820]
14. Wagner EH. Chronic disease management: what will it take to improve care for chronic illness? *Effective Clin Prac* 1998;1:1–4.
15. Shortell SM, Marsteller JA, Lin M, Pearson ML, Wu SY, Mendel P, et al. The role of perceived team effectiveness in improving chronic illness care. *Med Care* 2004;41:1040–1048. [PubMed: 15586830]
16. Wagner EH. The role of patient care teams in chronic disease management. *BMJ* 2000;320:569–72. [PubMed: 10688568]
17. Keough ME, Field TS, Gurwitz JH. A model of community-based interdisciplinary team training in the care of the frail elderly. *Acad Med* 2002;77:936. [PubMed: 12228109]

18. Cloutier MM, Wakefield DB, Hall CB, Bailit HL. Childhood asthma in an urban community: Prevalence, care system and treatment. *Chest* 2002;122:1571–1579. [PubMed: 12426255]
19. Cloutier MM, Wakefield DB, Sangeloty-Higgins P, Delaronde S, Hall CB. Asthma guideline use by pediatricians in private practices and asthma morbidity. *Pediatrics* 2006;118(5):1880–1887. [PubMed: 17079558]
20. Cowen MK, Wakefield DB, Cloutier MM. Classifying asthma severity: objective versus subjective measures. *J Asthma* 2007;44(9):711–715. [PubMed: 17994399]
21. Hall CB, Brazil KM, Tennen H, Cloutier MM. Organizational assessment in pediatric primary care: Development and initial validation of the primary care organizational questionnaire (PCOQ). *Health Svcs Management Res* 2006;19(4):207–217.
22. Shortell SM, Jones RH, Rademaker AW, Gillies RR, Dranove DS, Hughes EF, et al. Assessing the impact of total quality management and organizational culture on multiple outcomes of care for coronary artery bypass graft surgery patients. *Med Care* 2000;38:207–217. [PubMed: 10659694]
23. Shortell SM, Zimmerman JE, Rousseau DM, Gillies RR, Wagner DP, Draper EA, et al. The performance of intensive care units: Does good management make a difference? *Med Care* 1994;31:508–525. [PubMed: 8182978]
24. Kreuger P, Brazil K, Lohfeld L, Edward HG, Lewis D, Tjam E. Organization specific predictors of job satisfaction: Findings from a Canadian multi-site quality of work life cross-sectional survey. *BMC Health Services Research* 2002;2:6–13. [PubMed: 11914162]
25. McCulloch, CE.; Seale, SR. Generalized, linear, and mixed models. New York, NY: John Wiley and Sons, Inc; 2001. p. 281-4.
26. Wolfinger RD. Fitting nonlinear mixed models with the new NLMIXED procedure. *Proceedings of the 99 Joint Statistical Meetings* 1999:287.
27. Kaissi AM, Kralewski J, Dowd B, Heaton A. The effect of the fit between organizational culture and structure on medication errors in medical group practices. *Health Care Manage Rev* 2007;31:12–21. [PubMed: 17245198]
28. Green CJ, Fortin P, Maclure M, Macgregor A, Robinson S. Information system support as a critical success factor for chronic disease management: Necessary but not sufficient. *Intl J Med Inform* 2006;75:818–828.
29. Miles Paul V. Integrating maintenance of certification into daily practice. *Pediatric Diplomates: a newsletter from the American Board of Pediatrics* Fall 2006:4–5.

Table 1

Demographics of Participants

Personal Characteristics [*]	Clinicians (n=138)	Non-Clinicians (n=247)
Age (yrs)	45 ± 11 (26, 80)	41 ± 12 (16, 72)
Sex	M: 42 (31%); F 95 (69%)	M: 5 (2%); F: 242 (98%)
Ethnicity		
Caucasian	116 (84%)	199 (81%)
African-American	7 (5%)	19 (8%)
Other/Unknown	15 (11%)	29 (12%)
Employment Status		
Full Time	87 (65%)	137 (60%)
Part Time	46 (35%)	93 (40%)
Tenure (yrs)	10 ± 8 (0.5, 31)	7 ± 8 (0.5, 32)
Clinician Demographics		
Provider Type:		
Physician	94 (68%)	
Mid-Level Practitioner	44 (32%)	
Yrs Since Highest Degree		
<5 Yrs	14 (11%)	
5 – 10 Yrs	33 (25%)	
>10 Yrs	83 (64%)	
No. Hours Seeing Patients/week:		
Physicians	35 ± 12 (5,60)	
Mid-level practitioner	32 ± 10 (8,40)	
No. Patients Seen/Week:		
# patients/session: Physicians	17 ± 8 (5, 35)	
# patients/session: Mid-level practitioner	13 ± 7 (5, 30)	

* Mean ± SD (Range) or Frequency (Percent)

Table 2

Comparison of Scores on Organizational Characteristics in Urban Clinics and Private Practices

Organizational Characteristic [*]	Private Practices	Urban Clinics	P value
Communication within the group	4.37 ± 0.38	4.03 ± 0.40	0.0189
Communication between groups	4.32 ± 0.39	3.95 ± 0.42	0.0142
Communication Timeliness	4.00 ± 0.34	3.51 ± 0.32	0.0003
Conflict Resolution	3.95 ± 0.46	3.39 ± 0.23	0.0004
Leadership	3.93 ± 0.37	3.52 ± 0.31	0.0029
Perceived effectiveness	4.17 ± 0.32	3.71 ± 0.43	0.0012
Decision Authority	4.03 ± 0.41	3.81 ± 0.48	0.1804
Psychological Job Demands	3.69 ± 0.36	3.03 ± 0.35	<0.0001
Job Satisfaction	4.47 ± 0.36	3.91 ± 0.50	0.0006

^{*} Likert scale 1-5 with 1 = strongly disagree and 5 = strongly agree

Table 3
Organizational Attributes and Easy Breathing Enrollment and Distribution of a Written Asthma Treatment Plan

Organizational Attribute [†]	Easy Breathing Enrollment			Distribution of a Written Treatment Plan		
	Relative Rate	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Communication within group	1.6	(0.73, 3.5)	0.2275	2.01	(0.59, 6.79)	0.2519
Communication between groups	1.8	(0.84, 3.87)	0.1262	2.06	(0.61, 6.94)	0.2346
Communication timeliness	2.96	(1.32, 6.64)	0.0098	3.59	(1.11, 11.59)	0.0333
Conflict resolution	1.61	(0.72, 3.59)	0.2392	2.42	(0.73, 7.96)	0.1409
Decision authority	2.16	(1.05, 4.41)	0.036	5.03	(1.86, 13.65)	0.0024
Psychological job demands	1.15	(0.55, 2.4)	0.6944	2.32	(0.84, 6.41)	0.1018
Leadership	1.91	(0.81, 4.51)	0.1349	2.94	(0.77, 11.28)	0.1111
Perceived effectiveness	2.6	(1.11, 6.08)	0.0282	2.71	(0.66, 11.11)	0.1588
Job satisfaction	2.57	(1.39, 4.73)	0.0036	3.38	(1.24, 9.22)	0.0192

* Adjusted for Staff/Clinician FTE Ratio, % Public Insurance and Clinician Status

[†] Item range = 1-5