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Managing Attention-Deficit/Hyperactivity Disorder in Primary Care: A Systematic Analysis of Roles and Challenges

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ABSTRACT

OBJECTIVE. This study was designed to investigate the perceptions of primary care providers about their roles and the challenges of managing attention-deficit/hyperactivity disorder and to evaluate differences between providers who serve families primarily from urban versus suburban settings.

METHODS. The ADHD Questionnaire was developed to assess primary care provider views about the extent to which clinical activities that are involved in the management of attention-deficit/hyperactivity disorder are appropriate and feasible in primary care. Participants were asked to rate each of 24 items of the questionnaire twice: first to indicate the appropriateness of the activity given sufficient time and resources and second to indicate feasibility in their actual practice. Informants used a 4-point scale to rate each item for appropriateness and feasibility.

RESULTS. An exploratory factor analysis of primary care provider ratings of the appropriateness of clinical activities for managing attention-deficit/hyperactivity disorder identified 4 factors of clinical practice: factor 1, assessing attention-deficit/hyperactivity disorder; factor 2, providing mental health care; factor 3, recommending and monitoring approved medications; and factor 4, recommending nonapproved medications. On a 4-point scale (1 = not appropriate to 4 = very appropriate), mean ratings for items on factor 1, factor 2, and factor 3 were high, indicating that the corresponding domains of practice were viewed as highly appropriate. Feasibility challenges were identified on all factors, but particularly factors 1 and 2. A significant interaction effect, indicating differences between appropriateness and feasibility as a function of setting (urban versus suburban), was identified on factor 1. The challenges of assessing attention-deficit/hyperactivity disorder were greater for urban than for suburban primary care providers.

CONCLUSIONS. Primary care providers believe that it is highly appropriate for them to have a role in the management of attention-deficit/hyperactivity disorder. Feasibility issues were particularly salient related to assessing attention-deficit/hyperactivity disorder and providing mental health care. The findings highlight the need not only for additional training of primary care providers but also for practice-based resources to assist with school communication and collaboration with mental health agencies, especially in urban practices.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) is the most commonly occurring disruptive behavior disorder encountered by clinicians in primary care. This condition is estimated to occur among 3% to 10% of school-aged children.1,2 In addition, ADHD often coexists with mental health and learning disorders. Among clinic-referred children with ADHD, it is estimated that 50% have oppositional defiant disorder or conduct disorder, 30% have an anxiety disorder, 25% have a depressive disorder, and 25% have a learning disability.1 Although the prevalence of comorbid conditions in primary care settings is somewhat lower than rates in clinic-referred samples, the prevalence is still high (eg, 40% oppositional defiant disorder, 10% depressive disorders).2,4
A major venue for the delivery of services to children with ADHD in the United States is primary care. The American Academy of Pediatrics (AAP) has affirmed the critical role of primary care providers (PCPs) in the delivery of services to children with ADHD. The AAP, through its Committee on Quality Improvement, has issued guidelines for assessment and treatment of this disorder. These guidelines highlight the importance of obtaining information from the child, parents, and teachers about ADHD and potential comorbid conditions in conducting an assessment of ADHD. Also, the guidelines emphasize that treatment planning ought to represent a collaborative effort among the family, school, and health systems and that treatment, including pharmacologic and/or behavioral methods, should be designed to improve specified academic and behavioral targets.

Most primary care pediatricians report that they are aware of the AAP guidelines, and >75% have reported that they incorporate the guidelines into their practice; however, when asked about specific components of the guidelines, only 35% reported using all 4 assessment components recommended by the AAP. When PCPs have been offered support and education, the AAP guidelines generally have been implemented successfully; however, even in these situations, several obstacles have been encountered, including a lack of clarity about how to interpret discrepant findings from parent and teacher reports, limited knowledge of community resources, and limited information about how to identify children who are in need of psychoeducational evaluation and how to obtain these evaluations from the school. In addition, providers often report that lack of time, reimbursement issues, lack of training, and the challenges of communicating with schools make it difficult to manage ADHD in the context of primary care practice. Furthermore, research has shown that the challenges of providing care to families who are served in clinics that are funded primarily by public insurance differ from those that arise among families who are served in practices that are financed mainly through private insurance.

Although PCPs are assuming a greater role in the management of ADHD, there continues to be a substantial gap between existing need and the capacity to provide ADHD services in the context of primary care practice. Improved understanding of what PCPs believe is appropriate for them to do compared with what is feasible may help to identify effective strategies to facilitate the delivery of ADHD services in primary care. Several studies have investigated the feasibility of providing ADHD services in the context of primary care, and a recent study found that PCPs who served predominately families from low-income communities experienced greater challenges in caring for children with ADHD than PCPs who served more affluent families; however, the research generally has not assessed feasibility in the context of what PCPs view as appropriate for them to do and has used surveys with unknown reliability. This study is unique in that we (1) developed a standardized and reliable instrument for assessing PCP perceptions of both the appropriateness and the feasibility of a wide range of clinical activities related to the assessment and treatment of ADHD, (2) compared ratings of appropriateness and feasibility as a method of identifying challenges in managing ADHD, and (3) compared the views of PCPs who practice in low-income urban communities versus suburban settings to understand whether these groups differ with regard to their roles and challenges in treating children with ADHD.

METHODS
Development of the ADHD Questionnaire for Primary Care Providers
The ADHD Questionnaire for Primary Care Providers (AQ-PCP) was developed to assess PCP views about the extent to which clinical activities that are involved in the management of ADHD are appropriate and feasible in the context of primary care. The items in this questionnaire were developed on the basis of (1) a careful review of the AAP guidelines for assessing ADHD, (2) a review of research on the roles of PCPs in providing care to children with ADHD in the context of primary care, and (3) a series of focus groups with PCPs.

Focus groups were conducted across 4 practices (2 urban and 2 suburban) and included 29 PCPs who were employed within the extensive primary care network of the Children’s Hospital of Philadelphia (CHOP). Questions posed during the focus groups included the following: “What is your role in the assessment and treatment of ADHD?” “How do you view your role (what is appropriate for you to do)?” and “What are the major challenges you encounter in serving children with ADHD?”

The focus group discussions centered on 5 themes: (1) roles and challenges related to assessment; (2) roles and challenges related to treatment; (3) communication problems in working with schools and mental health agencies; (4) barriers to care, including time and reimbursement; and (5) supports that might be useful (eg, education of PCPs, consultation with ADHD experts, support in linking with school, provision of family therapy in primary care setting).

On the basis of the literature review and focus groups, items for the AQ-PCP were generated. The scale was reviewed and edited by several PCPs. The final version of the questionnaire consisted of 24 items, each of which referred to a separate clinical activity related to the assessment and treatment of ADHD. Respondents were requested to rate each item of the scale twice; first to indicate the appropriateness of each clinical activity assuming that there were enough time and resources and a second time to indicate the feasibility of implementing each activity in their actual practice. Informants used a 4-point scale (1 = not at all; 2 = somewhat; 3 = much; 4 = very much) to respond to the appropriateness and feasibility items. Sample items include the following: “obtaining behavior ratings from teachers for the initial assessment of ADHD” and “providing information to families about how to pursue behavior therapy in the community” (see Table 1 for all of the items listed in abbreviated form).
Study Participants
The study was conducted in 27 primary care practices that are affiliated with CHOP. Among these practices, 23 provided services primarily to children and families who resided in the outskirts of the Philadelphia and surrounding region (referred to as suburban practices). The remaining 4 practices were based in the city and served as resident training sites (urban practices). The questionnaire was administered to 181 PCPs (134 suburban, 46 urban), who all were board certified in pediatrics. Questionnaires from 121 PCPs were returned.

Procedures
The study was exempted from review by the human subjects committee of the institutional review board at CHOP because the survey contained no information that could potentially identify a child. In addition, no information that could be used to identify the informant (PCP) was obtained, with the exception of name of practice. The Medical Director of Primary Care Services informed PCPs about the study via e-mail. Subsequently, a letter and packet of questionnaires were sent to site managers requesting that they distribute the AQ-PCP to each PCP in the practice. Practice managers and selected practice leaders were contacted periodically to remind them to urge PCPs to submit their surveys. In addition to this method, surveys were administered at a regularly scheduled meeting that included ~65% of the urban-based PCPs. PCPs were not reimbursed for their participation in this study.

Statistical Analyses
To organize the large volume of data and identify salient constructs underlying the 24 items of the AC-PCP, we conducted a factor analysis. The factors that were identified in the analysis represent groups of clinical activities that are related to one another and thus reflect salient roles or domains of practice for PCPs associated with the management of ADHD. Given the uncertainty about the underlying constructs of the AQ-PCP, an exploratory as opposed to a confirmatory factor analysis was conducted. A series of common factor analyses using squared multiple correlations as the initial communalities estimates were conducted to identify the latent structure of the AQ-PCP. Determination of the most parsimonious factor structure was assessed using both orthogonal (varimax) and oblique (promax) rotation methods. Factor analysis yields pattern coefficients or factor loadings; the magnitude of these coefficients is indicative of the strength of the association between the item on the AQ-PCP and the factor. All pattern coefficients ≥0.40 were predetermined to indicate a significant association between the item on the AQ-PCP and the proposed factor. Factor structures were evaluated ac-

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### TABLE 1  Four-Factor Structure of the AQ-PCP

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Pattern Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identifying behavior ratings from parents, initial assessment</td>
<td>0.807^ab</td>
</tr>
<tr>
<td>2. Obtaining behavior ratings from teachers, initial assessment</td>
<td>0.921^ab</td>
</tr>
<tr>
<td>3. Communicating with the teacher to obtain additional information</td>
<td>0.650^a</td>
</tr>
<tr>
<td>4. Determining whether there is a need for a psychoeducational evaluation</td>
<td>0.304</td>
</tr>
<tr>
<td>5. Obtaining and reviewing psychoeducational reports</td>
<td>0.269</td>
</tr>
<tr>
<td>6. Scoring and interpreting behavioral ratings</td>
<td>0.728^ab</td>
</tr>
<tr>
<td>7. Resolving discrepancies between parent and teacher ratings</td>
<td>0.634^a</td>
</tr>
<tr>
<td>8. Identifying significant acting-out behaviors that warrant diagnosis/treatment</td>
<td>0.395</td>
</tr>
<tr>
<td>9. Identifying coexisting anxiety/depression that warrants diagnosis/treatment</td>
<td>0.227</td>
</tr>
<tr>
<td>10. Educating families about the diagnosis of ADHD</td>
<td>0.170</td>
</tr>
<tr>
<td>11. Recommending specific behavior modification procedures/strategies</td>
<td>0.029</td>
</tr>
<tr>
<td>12. Obtaining information about obtaining educational treatments/supports</td>
<td>0.019</td>
</tr>
<tr>
<td>13. Providing recommendations about atomoxetine</td>
<td>0.010</td>
</tr>
<tr>
<td>14. Providing recommendations about atomoxetine and/or bupropion</td>
<td>0.009</td>
</tr>
<tr>
<td>15. Providing recommendations to families about atomoxetine and/or bupropion</td>
<td>0.005</td>
</tr>
<tr>
<td>16. Providing information about obtaining educational treatments/supports</td>
<td>0.187</td>
</tr>
<tr>
<td>17. Providing information about pursuing behavior therapy</td>
<td>0.276</td>
</tr>
<tr>
<td>18. Responding to family questions about dietary and/or herbal remedies</td>
<td>0.142</td>
</tr>
<tr>
<td>19. Discussing reason for referral to mental health providers</td>
<td>0.070</td>
</tr>
<tr>
<td>20. Initiating communication with school beyond behavior ratings</td>
<td>0.598^a</td>
</tr>
<tr>
<td>21. Responding to teacher questions/concerns about child behavior</td>
<td>0.597^a</td>
</tr>
<tr>
<td>22. Monitoring medication effects and adverse effects, parent report</td>
<td>0.031</td>
</tr>
<tr>
<td>23. Monitoring medication effects and adverse effects, teacher report</td>
<td>0.378</td>
</tr>
<tr>
<td>24. Monitoring adherence to the treatment plan</td>
<td>0.169</td>
</tr>
</tbody>
</table>

^a Salient pattern coefficients (factor loadings ≥0.40). The magnitude of the pattern coefficients is indicative of the strength of the association between the item and the factor.

^b Three highest pattern coefficients for each factor.
The challenge faced by PCPs in implementing their roles in the management of ADHD was operationalized as the difference between perceptions of appropriateness and feasibility. A series of repeated measures analyses of variance were conducted to determine whether the difference between mean item ratings for appropriateness and feasibility for each of the 4 factors was significant. A series of repeated measures analyses of variance were conducted to determine whether there were differences between PCPs who worked in suburban versus urban practices with regard to their perceptions of the appropriateness of each domain of practice. For these 4 tests of significance, the α level was adjusted to .0125 to account for the multiple comparisons. For cases in which significant differences were identified, effect sizes (Cohen's $d^{19}$) were computed.

The factor structure of the AQ-PCP was identified, the mean rating of the items on each factor was computed (range: 1–4). A mean rating of ≥3.0 for a factor (corresponding with a rating of “much” on the scale) was interpreted as indicating that the factor or domain of practice was viewed as highly appropriate for PCPs. A series of $t$ tests was conducted to determine whether there were differences between PCPs who worked in suburban versus urban practices with regard to their perceptions of the appropriateness of each domain of practice. For these 4 tests of significance, the α level was adjusted to .0125 to account for the multiple comparisons. For cases in which significant differences were identified, effect sizes were calculated by using Cohen's $d^{19}$ adjusted for the correlation between scores for appropriateness, including 82 (61%) in suburban practice and 37 (80%) in urban practice.

Factor Analysis of the AQ-PCP

A series of factor analyses was conducted, and it was determined that a 4-factor (oblique) solution best met the criteria described for factor retention. In other words, the factor analysis indicated that the AQ-PCP assesses 4 constructs or domains of PCP practice related to the management of ADHD. This factor solution accounted for a total variance of 61%. Table 1 presents the pattern coefficients (factor loadings) for the 4 constructs that emerged from the factor analysis. All but 2 of the AQ-PCP items showed significant factor loadings (ie, ≥0.40) and were retained in the final solution. The first factor, which accounted for 45% of the total scale variance, contained 7 items with factor loadings ≥0.40. The α coefficient for this factor was .89, indicating a high level of internal consistency reliability. This factor, which was labeled “assessing ADHD,” contained items related to obtaining information from parents and teachers for the purpose of assessing ADHD.

The second factor, accounting for 7% of total variance, included 8 items. The α coefficient for this factor was high (.85). This factor, referred to as “providing mental health care,” consisted of items related to educating families about psychosocial and educational treatments and determining the presence of comorbid conditions.

The third factor, accounting for 5% of total variance, comprised 5 items and had a high α coefficient (.92). This factor, labeled “recommending and monitoring Food and Drug Administration [FDA]-approved medications for ADHD,” consisted of items that pertained to the use of stimulants and atomoxetine and monitoring medication effectiveness using parent and teacher rating scales.

The fourth factor, accounting for 3% of total variance, contained 2 items. The internal consistency reliability for this factor also was high (.87). This factor, referred to as “recommending non–FDA-approved medications for ADHD,” consisted of items related to the use of α-2 agonists and bupropion in managing ADHD.

Table 2 presents the unit-weighted correlations among the 4 factors. The intercorrelations were generally in the moderate range, indicating relative independence among related factors; however, the correlations of factor 3 with factor 1 and factor 2 were in the moderate to high range, indicating relatively strong relationships between factor 3 and the first 2 factors and somewhat lower independence among these factors.
Levels of Appropriateness for Each Factor

The distribution of scores on factors 1 and 2 did not deviate substantially from normality, but there were severe deviations from normality on the other 2 factors. Given that the size of the sample was relatively large, it is not likely that the nonnormality of the distributions for factors 3 and 4 exerted a meaningful impact on the analyses.20 Levene’s test of homogeneity of variance was nonsignificant for each factor when comparing the distributions for urban and suburban PCPs, supporting the use of analyses of variance.

Table 3 presents the mean rating for each factor. As indicated, mean ratings for factors 1, 2, and 3 were high (≥3.0), particularly for factors 2 and 3 (3.28 and 3.33, respectively), indicating that the corresponding domains of practice were viewed as highly appropriate for PCPs; however, the mean rating for factor 4 was low (<2.0), indicating that this domain of practice (recommending non–FDA-approved medications for ADHD) generally was viewed as lacking in appropriateness for PCPs.

Table 3 also indicates the mean appropriateness rating for each item of the AQ-PCP. There was considerable variability among mean item ratings within each factor. For example, mean item ratings ranged from 2.61 to 3.55 for factor 1. Obtaining behavior ratings from parents and teachers was viewed as a highly appropriate activity for PCPs, whereas initiating communication with school professionals, responding to teacher questions about child behavior, and resolving discrepancies between parent and teacher ratings were viewed as having lower levels of appropriateness. With regard to factor 2 (providing mental health care), all of the mean item ratings were high, except responding to family questions about diet and identifying comorbid anxiety and depression. All of the items related to factor 3 (recommending and monitoring FDA-approved medications) had high mean ratings, and the 2 items on factor 4 (recommending and monitoring non–FDA-approved medications) had low mean ratings. Differences between urban and suburban PCPs were not significant at the .0125 level on any of the factors.

Feasibility Challenges Related to Each Factor

Scores on each factor for ratings of feasibility were computed. The χ² coefficients for each of the feasibility factors were high (>.80), which supported the internal consistency reliability of these dimensions. Mean item ratings of feasibility were examined for each of the 4 factors. The distribution of mean item ratings of feasibility on all factors, except factor 4, did not deviate substantially from normality. Given the relatively large sample size, it is not likely that the nonnormality of the distribution for factor 4 had a meaningful impact on the analyses.20

The difference between mean item ratings for appropriateness and feasibility was significant for each factor (factor 1, F₁,₁₁₇ = 170.82, P < .001; factor 2, F₁,₁₁₇ = 103.59, P < .001; factor 3, F₁,₁₁₇ = 82.14, P < .001; factor 4, F₁,₁₁₇ = 11.60, P < .001). Effect sizes were large
for factors 1 and 2 (1.01 and 0.93, respectively), moderate for factor 3 (0.44), and small for factor 4 (0.20). These findings suggested that PCPs experience challenges with implementing clinical activities in each of the 4 domains of ADHD practice but especially in the domains related to factor 1 (assessing ADHD) and factor 2 (providing mental health care).

A significant interaction effect, indicating differences between appropriateness and feasibility as a function of setting (urban versus suburban), was identified on factor 1 ($F_{1,117}=7.75$, $P=.006$), and the interaction effect on factor 3 just failed to reach significance using the adjusted $\alpha$ level of .0125 ($F_{1,117}=5.96$, $P=.016$). Figure 1 illustrates the interaction effect for factor 1. The difference between appropriateness and feasibility was greater for urban PCPs (effect size of 1.33) than for suburban PCPs (effect size of 0.85). Figure 2 illustrates the interaction effect for factor 3. Once again, the difference between appropriateness and feasibility was greater for urban PCPs (effect size: 0.64) than for suburban PCPs (effect size: 0.36). The interaction effect for factors 2 and 4 was not significant.

**FIGURE 1**
Differences between mean item ratings of appropriateness and feasibility as a function of setting for factor 1 (assessing ADHD). ES indicates effect size. Items were rated on a 4-point scale (1 = not at all; 2 = somewhat; 3 = much; 4 = very).

**FIGURE 2**
Differences between mean item ratings of appropriateness and feasibility as a function of setting for factor 3 (recommending and monitoring FDA-approved medications for ADHD). ES indicates effect size. Items were rated on a 4-point scale (1 = not at all; 2 = somewhat; 3 = much; 4 = very).

**DISCUSSION**
This study describes the development of a standardized and reliable method for examining PCP perceptions of the appropriateness and feasibility of a wide range of clinical activities that pertain to the assessment and treatment of ADHD. Unique aspects of the study are that we systematically compared ratings of appropriateness and feasibility to identify practice challenges, and we contrasted the views of PCPs from urban and suburban settings. The findings demonstrated that urban PCPs experienced more challenges in providing certain aspects of ADHD care than suburban PCPs, but both urban and suburban PCPs generally rated ADHD clinical activities as being appropriate for them.

The factor analysis of the AQ-PCP identified 4 reliable constructs, referring to domains of practice in the management of ADHD in primary care (assessing ADHD, providing mental health care, recommending and monitoring FDA-approved medications for ADHD, and recommending non-FDA-approved medications for ADHD). In general, each of these domains, with the exception of using non-FDA-approved medications, was viewed as highly acceptable...
and within the scope of practice of PCPs. The findings of this study affirm the appropriateness of situating services for children with ADHD in primary care and the general acceptability of ADHD clinical activities to PCPs. At the same time, this study highlights the limits of primary care practice related to managing ADHD and identifies several challenges that need to be addressed, particularly within urban primary care practices that serve low-income communities.

Although assessing ADHD generally was viewed by PCPs as within their scope of practice, there was substantial variability in their ratings of the items on this factor. PCPs reported that it is highly appropriate for them to obtain rating scales from parents and teachers to assess ADHD; however, initiating communication with school professionals (in addition to requesting rating scales) and responding to questions from teachers were viewed as less appropriate, suggesting that PCPs may need assistance from other members of the practice when communicating with the school is needed.

Factor 2, referring to providing mental health care, included primarily items related to educating families about psychosocial and educational treatments and assessing for the presence of comorbid conditions, such as behavior disorders, emotional disorders, and learning disabilities. PCPs generally believed that the range of activities included in this factor was within their scope of practice. It is noteworthy that views about the appropriateness of screening for anxiety and depression were relatively low, suggesting that PCPs may need education or additional resources to assist them in screening for internalizing problems.

The items on factor 2 did not pertain to the actual provision of mental health services such as behavior therapy and family counseling. The 1 item on the AQ-PCP that referred to the provision of behavior therapy (item 11, recommending specific behavior modification strategies to families) did not load on factor 2 or any of the other factors; however, this item had a relatively high rating for appropriateness, suggesting that it generally was viewed as being within the scope of practice for PCPs.

All of the items related to recommending and monitoring FDA-approved medications (stimulants and atomoxetine) were within the acceptable range, indicating that these activities are within the scope of practice of PCPs. The 2 items related to recommending non–FDA-approved medications (bupropion and α-2 agonists) had low ratings of appropriateness, suggesting that PCPs generally would prefer to refer to specialists (eg, child and adolescent psychiatrists, developmental-behavioral pediatricians, pediatric neurologists) when the first-line medications for ADHD are not successful in treating this disorder.

Providers reported that they experience significant challenges in managing ADHD. The challenges were particularly strong related to factor 1 (assessing ADHD), which contained several items related to obtaining information from schools, and factor 2 (providing mental health care). The challenges in these domains highlighted the problems experienced by PCPs in collaborating with schools and making appropriate referrals to mental health providers, which have been identified as barriers in previous studies.10,21 On presenting the findings of this study to a focus group of PCPs, the providers highlighted the need for additional training related to assessment, school collaboration, family education, and collaboration with mental health providers; however, it was clear that continuing education was not sufficient to address the feasibility issues faced by PCPs. A recurrent theme among urban providers during this discussion was the need for a team member or a “point person” (eg, nurse, school liaison, mental health specialist) to assist in collaborating with schools, educating families, arranging for appropriate and affordable mental health care, and facilitating follow-up with mental health providers. Also, PCPs indicated that it would be helpful to have ADHD experts available in person or by telephone to assist with medication issues, questions about comorbidity, and appropriate referrals. Furthermore, there was some discussion about the need for a practice-based family behavior therapist.

This investigation affirmed the findings of the study by Leslie et al12 that there are differences between urban and suburban providers with regard to the management of ADHD. The findings illustrated in Figs 1 and 2 point out 2 significant feasibility problems for urban practitioners: urban PCPs experience substantially greater challenges with assessing ADHD and using FDA-approved medications than suburban PCPs. Subsequent focus groups with PCPs indicated that these challenges reflect the problems that urban PCPs experience with getting information from urban schools and obtaining feedback on a consistent basis from parents and teachers in monitoring medications.

In comparing the findings of urban and suburban PCPs in this study, it should be noted that these groups differed with regard not only to the demographics of the children served (eg, race/ethnicity, socioeconomic status) but also to the involvement of providers in resident education. Practicing in an academic context has been found to be associated with a greater likelihood of implementing AAP guidelines; therefore, the greater feasibility issues reported by urban PCPs as compared with suburban PCPs may be attributable to factors that are associated with poverty (eg, higher psychosocial stress among families, greater challenges faced by schools) as well as factors that are related to the PCPs (eg, frustration in trying to implement the relatively high standards of the AAP guidelines in an urban setting).

One limitation of the study pertains to the generalizability of the findings. The study was conducted in the Philadelphia metropolitan area. The perceptions of the PCPs in this study, particularly with regard to issues of feasibility, are likely influenced to some extent by the public and private insurance systems in this region and the relationship that CHOP has established with third-party payers for medical and behavioral health care. Provider perceptions of roles and scope of practice related to the management of ADHD are likely to be less affected by regional differences in reimbursement systems.
Also, as indicated, the urban and suburban PCPs differed with regard to both patient demographics and the involvement of PCPs in resident training. Suburban PCPs generally were not involved in resident training, whereas urban PCPs were. It is possible that the challenges faced by urban PCPs who are not involved in resident education differ in some ways from those who are trainers. Also, urban PCPs who practice in clinics that are not affiliated with tertiary care hospitals such as CHOP may have fewer resources, which could make it more challenging for them to manage ADHD than their colleagues who practice in hospital-affiliated programs. One additional limitation is that the urban PCPs in this study may have had more opportunities for continuing education about the management of ADHD than the suburban PCPs.

CONCLUSIONS
The findings of this study demonstrated that PCPs have 4 major roles related to the management of ADHD: assessing the disorder, providing mental health care, recommending and monitoring FDA-approved medications, and recommending non–FDA-approved medications. Providers indicated that each of these roles, with the exception of recommending non–FDA-approved medications, is appropriate for them and within their scope of practice. Feasibility issues were identified particularly related to assessing ADHD and providing ADHD-related mental health care for children and families (eg, teaching behavior management strategies). The challenges of assessing ADHD seemed to be strongly related to the problems that PCPs experience with getting information from schools and communicating with educational professionals. Urban PCPs reported much more difficulty with assessing ADHD and medicating children using FDA-approved drugs than their colleagues in suburban practice. The findings highlight the need not only for additional training of PCPs but also for practice-based resources to assist with school communication and collaboration with mental health agencies.

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