Meeting the Measure: Improving ADHD Care in the Medical Home

HEIDI SCHWARZWALD, MD, MPH; AGNES HERNANDEZ-GRANDE, MD; STEPHANIE CHAPMAN, PHD; AND STEPHANIE MARTON, MD, MPH

ABSTRACT

OBJECTIVES: Best practice and Health Effectiveness Data and Information Set (HEDIS) quality metrics recommend at least 1 follow-up appointment within 30 days of initiation of attention-deficit/hyperactivity disorder (ADHD) medication. The objective of this study was to improve follow-up within an integrated medical home serving Medicaid and Children's Health Insurance Program patients.

STUDY DESIGN: Correlational study based on quality improvement methodologies.

METHODS: A retrospective chart review was conducted after 2 quality improvement cycles to determine the effectiveness of interventions from September 2013 through October 2014. In December 2013, a patient registry was created. Social workers called patients on the registry to monitor medication effects and to ensure follow-up. In April 2014, physicians were advised to reduce ADHD medication prescription length from 30 days to 15 days or less. Clinic HEDIS metrics were reviewed at baseline, prior to the second intervention, and at the conclusion of the chart review.

RESULTS: Baseline HEDIS metrics from December 2013 showed 43% (n = 7) of patients diagnosed with ADHD returned for a visit within 30 days of medication initiation. This increased to 57% (n = 35) in April 2014. A second intervention increased the patient return rate within 30 days to 85% (n = 47) by October 2014. Of those patients who were both included on the registry and received a prescription for 15 or fewer days, 95% (n = 21) achieved the 30-day metric.

CONCLUSIONS: Simple changes, such as maintenance of an ADHD registry and shortened initial prescription duration, can improve patient adherence with follow-up ADHD care.

The American Journal of Accountable Care. 2017;5(1):46-50

Attention-deficit/hyperactivity disorder (ADHD) was present in 11% of children in the United States aged 4 to 17 years in 2011.[1] The American Academy of Pediatrics (AAP) has developed several guidelines and tool kits to assist pediatricians in the diagnosis, treatment, and management of ADHD. The AAP recommends frequent follow-up appointments for medication titration, while the Healthcare Effectiveness Data and Information Set (HEDIS) goals as outlined by the National Committee for Quality Assurance (NCQA) recommend at least 1 follow-up within 30 days of initiation of medication for the treatment of ADHD and that patients are seen at least twice in the subsequent 9 months.[2-4] HEDIS metrics have been designed to allow health insurance plans to measure quality in a consistent manner on key dimensions of care and service. Currently, the national quality metrics show poor adherence to these guidelines. For 2014, the 90th percentile ranking for the HEDIS metric aligning to 30-day follow-up after initiation of medication for ADHD was 53%.[5] This suggests that many patients and providers are not successfully meeting the ADHD initiation guidelines—one of the key HEDIS metrics for ADHD care in a primary care setting. Poor quality of care for pediatric ADHD can lead to increased healthcare costs as adults. Adult ADHD visits have increased in recent years and are associated with psychiatric comorbidity and reimbursement challenges leading to limited treatment in ambulatory settings in the United States.[6]

The Texas Children's Health Plan (TCHP) is a Medicaid managed care organization located in Houston. Formed in 1996, TCHP serves over 400,000 members in 2 service areas. In August 2013,

TCHP opened a new kind of healthcare facility for its members, which consist of children and expectant mothers. The Center for Children and Women ("The Center") is a patient-centered medical home (PCMH) with 2 locations in underserved areas of north and southwest Houston. These Centers are 501(a) subsidiaries of the TCHP and operate on a fully capitated 100% risk model. The Greenspoint location opened in August 2013 and the Southwest location opened in November 2014. This study was conducted in the Greenspoint location.

The Center's services include care from pediatricians, advanced nurse practitioners, obstetricians/gynecologists, and certified nurse midwives; optometrists; dentists; speech therapists; imaging technicians; a laboratory; and an onsite pharmacy. There is also a bilingual behavioral health team composed of a psychiatrist, psychologists, licensed therapists, and behavioral health social workers. The Center is open 7 days a week for pediatric care, for a total of 100 hours per week. Physician-led teams work in a multidisciplinary, collaborative care environment to ensure the ideal patient experience and the best possible outcomes. The Center is recognized by the NCQA as a level 3 PCMH.

At the time of this study, the Center in Greenspoint served approximately 10,000 members of the TCHP, with 88% receiving Medicaid and 12% receiving Children's Health Insurance Program coverage. Seventy percent of patients are Hispanic, 22% are African American, and the remaining 7% are Caucasian or other. Forty percent are primarily Spanish-speaking.

The care of children with ADHD is managed primarily by the pediatric providers. Those who benefit from additional behavioral management are co-managed by a psychologist or therapists. The psychiatrist will consult on medication initiation for children younger than 6 years and/or those with other comorbid mental health issues.

One of the initial ways success as an integrated pediatric-behavioral health team was measured was utilizing the HEDIS metric that measures the return of patients to see the provider within 30 days of initiating medication for the treatment of ADHD. Our HEDIS metric measured the TCHP members assigned to the Center who were also diagnosed with ADHD; this means some patients in our HEDIS metric may not have been seen at the Center. Most clinics are measured based on the patients who have had at least 1 appointment in their setting. However, because part of our mission is engagement of patients in care, we chose to use the same methodology as a health plan—member base and not just patient base.

Methods

Quality improvement (QI) was led jointly by the psychologist and the pediatric medical site leader. A team of key stakeholders analyzed the initial results and discussed possible barriers to care. The team developed an aim statement that was time-bound, specific, and achievable, and subsequently garnered support from the other members of the care teams. Sequential interventions were implemented and studied for effectiveness using the PDSA (Plan Do Study ACT) methodology.

The initial intervention, in December 2013, was the development of a registry of patients being started on medications for the treatment of ADHD. The registry is maintained by our social work team. Patients are called by our social work team within 5 days of medication initiation. Using a standardized questionnaire, the social workers review adherence, effectiveness, and possible side effects with the patient and caregiver. The results are recorded in the electronic health record (EHR) and forwarded to the prescribing provider. At this time, the social work team also ensures the patient has an appointment scheduled with a pediatric provider within 30 days of initiating medication. If the patient is also receiving behavior modification therapy, an attempt is made to schedule the 2 appointments sequentially, reducing the number of times a patient and family have to return to the clinic. Finally, if patients are noted missing their follow-up appointment, the social work team reaches out to the patient's family for rescheduling.

The second intervention, in April 2014, shortened the number of days of medication written for at initiation. Providers were encouraged to write for only 14 days of medication on the first prescription. By caregiver report, many choose not to give medications for ADHD to their children on the weekends or during school holidays. Hence, a traditional 30-day initial prescription was thought to last longer than intended by the prescriber and considered to be a contributor to delays in returning to the clinic within the 30-day window.

A retrospective chart review was conducted to evaluate the patients enrolled in ADHD care from September 2013 to October 2014 to capture the time period 3 months before the first PDSA cycle was initiated and 6 months after the second PDSA cycle was initiated. Charts were reviewed by searching the EHR for the diagnosis of ADHD and capturing those who were prescribed ADHD stimulant medications for the first time during the specified study period. Patients were excluded from the chart review if they had taken ADHD medication in the past or if they presented to the clinic already on medication prescribed elsewhere. The date of medication initiation, date of first follow-up visit, and the prescription duration were captured. Next, the ADHD registry was reviewed and the list of patients obtained via EHR diagnosis was compared with the list of patients on the ADHD registry maintained by social work.

In addition to the retrospective review, the clinic's HEDIS metrics, provided through the TCHP claims data, were concurrently reviewed for the baseline HEDIS metric (n = 7) at the start of the first PDSA cycle, at the start of the second PDSA cycle (n = 35), and the end of the chart review (n = 47).

This study was approved by the Baylor College of Medicine institutional review board.

Statistical Analysis

Comparisons were made between those who were not on the registry and received a prescription for 28 to 30 days and those who were on the registry and received a prescription for 14 to 15 days. Significance was calculated using Pearson's χ^2 test and Fisher's exact test. A *P* value of <.05 was considered statistically significant.

Results

From September 2013 to October 2014, 326 patients had a diagnosis of ADHD. A total of 237 (73%) were already stable on medications or not taking medication; 89 (27%) started medications during the study time and were thus eligible for the registry. Of those 89 patients, 42% were African American, 47% were Hispanic, and the remainder were Caucasian or other. The median age was 7 years, and 70% of those diagnosed with ADHD were male. Fifty-nine patients of the 89 eligible were added to the registry maintained by the social work team.

Our baseline HEDIS metric (n = 7) showed that 43% of our patients were returning for a completed appointment within 30 days of medication initiation. After our initial PDSA cycle of patient registry development and outreach, the metric increased to 57% (n = 35), which is above the 2014 90th percentile HEDIS metric. Our next intervention for reducing the length of time of the initial prescriptions to 14 to 15 days showed an improvement in those following up for care within 30 days to 85% (**Figure 1**).

After the completion of the first PDSA cycle, 58% (n = 21) of the patients on the registry successfully followed up with an office visit within 30 days of medication initiation compared with 50% (n = 8) of those off the registry (*P* = .58). Those who were both on the registry and given a shortened prescription had the greatest success of returning for an office visit. As demonstrated by **Figure 2**, when comparing patients receiving prescriptions for 15 days or less versus 28 to 30 days, patients enrolled in the registry tended to return for an office visit within the recommended time frame of 30 days more frequently (*P* = .30).

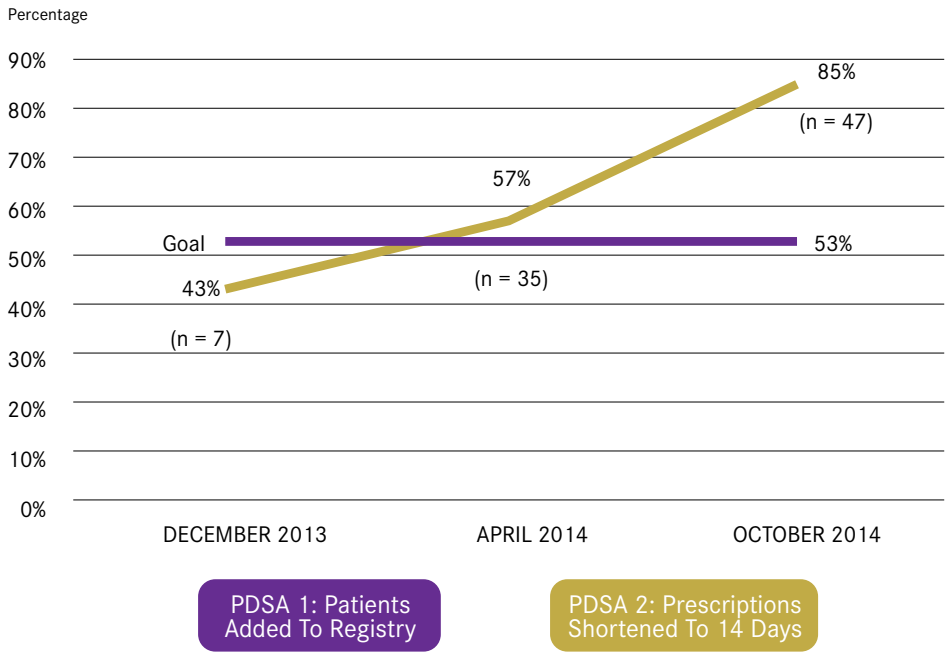
Discussion

Using standard QI methodology in a PCMH, the team successfully improved the rate of patients returning for care within 30 days of initiation of medication for ADHD. As our 2 PDSA cycles show, including patients on a registry and giving shorter prescriptions improved follow-up among patients initiated on ADHD medications between September 2013 and October 2014. Of note, the success of this intervention was attained in a clinical setting serving an underserved community. Given the difficulty in engaging low-income and racial/ethnic minority populations in behavioral healthcare for ADHD,[7] the success of this QI intervention is particularly striking.

The second PDSA intervention—the reduction of the initial medication prescription from 28 to 30 days to 14 to 15 days—seemed to be the more effective intervention of the QI project. Although our team initially proposed concerns that patients would be more likely to run out of medication prior to the follow-up appointment, and thus experience negative impact, our high follow-up rate suggests that this was not a problem. In contrast, the 14- to 15-day prescription allowed for a more timely medication assessment, providing the opportunity for titration if needed. The simplicity of changing the initial ADHD medication prescription duration suggests this intervention could be easily replicated in other settings.

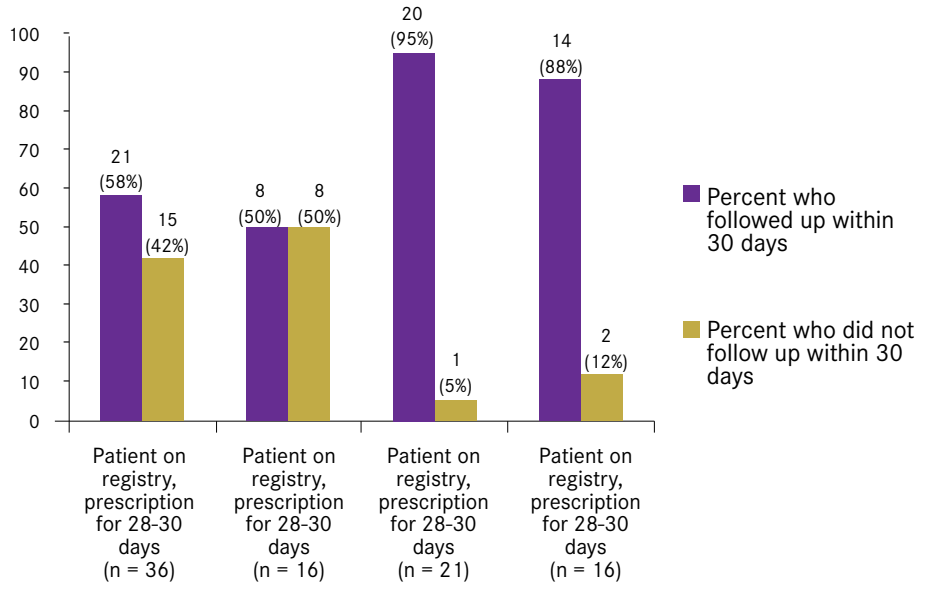
Although limited literature

Figure 1. ADHD Patients With a Completed Appointment Within 30 Days of ADHD Medication Initiation



ADHD indicates attention-deficit/hyperactivity disorder; PDSA, Plan Do Study ACT.

Figure 2. Rates of Success With Use of Registry and Shortened Prescription Duration[a]



[a]Improved rates of patient follow-up within 30 days of medication initiation when given shorter prescriptions. Also, improved follow-up rates when patients are added to the attention-deficit/hyperactivity disorder registry.

exist outlining QI interventions for ADHD engagement, a similar study that used a registry for ADHD across multiple settings showed a modest improvement in modified HEDIS scores.[8] Our study was a single site study, but the methodologies are comparable and support the utilization of a registry as a first step in improving care for children with ADHD—particularly those from vulnerable populations.

Innovations in the treatment of other chronic medical conditions may help guide future work aimed at improving ADHD care. An example of a chronic medical condition that requires careful adherence to medication and treatment plans is HIV. One study has shown that providing outpatient clinics with educational materials, such as brochures, posters, and messages about the importance of not missing clinic visits actually impacted clinic attendance.[9] This strategy could be adapted to messaging for parents of children with newly diagnosed ADHD. Additionally, a recent inpatient study had the pharmacist dispense controller medications for asthma directly to the patient prior to hospital discharge.[10] This model could be adapted in our outpatient clinic by having the clinical pharmacist dispense the ADHD medication to the patient in the room, thereby providing ample time and opportunity to ask medication-related questions and ensure the follow-up date is established. Looking at novel interventions from other areas of chronic illnesses and pediatric care could help improve care for children diagnosed with ADHD.

Limitations

This study has several limitations, including that the findings of this study are correlational in nature. The HEDIS metrics (a measure of our clinic's TCHP members) do not match the actual patient population represented in the chart review. Furthermore, this study was a retrospective chart review looking at a period of time in which 2 PDSA cycles were conducted. A randomized controlled trial would more clearly demonstrate that the elements within this intervention were responsible for the change seen. Additionally, during this project, our team identified several missed opportunities for improved care and integration. Better communication among the teams will help improve registry maintenance, as our team missed placing patients on our registry 36% of the time. Even if patients were placed on the registry, however, missed calls due to missing numbers or unreturned voicemails limited phone communication.

Despite the clinic's integrated model, most patients newly initiated on medications were seen by members of the behavioral health team 1 or more times during the first 30 days, with some of these patients not getting back to their prescribing provider within the 30-day window. Better coordination of care between behavioral health and pediatric appointments may improve initiation follow-up rates. Better communication and care coordination will help ensure the registry continues to remain a useful tool in allowing our clinic to achieve our ADHD HEDIS metric. In the future, additional registries may be developed that could be useful for other pediatric chronic diseases, such as obesity.

Conclusions

Partnership between clinicians, families, patients, and managed care organizations utilizing standardized HEDIS metrics can improve care and service to vulnerable patient populations. Our study showed that 2 simple interventions carefully constructed and implemented by multiple stakeholder improved our clinic's HEDIS metric and ultimately our clinic's quality of care. Integrated medical home models of care are increasing in number within the country and may be sites

where QI methodologies can be fully harnessed with the ultimate goal of improved behavioral healthcare for patients.

Author Affiliations: Department of Pediatrics, Baylor College of Medicine (HS, AH, SC, SM), Houston, TX; Texas Children's Health Plan (HS, SC, SM), Houston, TX.
Source of Funding: None.
Author Disclosures: Dr Schwarzwald is a board member of Ronald McDonald House charities. The remaining authors report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.
Authorship Information: Concept and design (HS, AH, SC, SM); acquisition of data (AH, SM); analysis and interpretation of data (AH, SM); drafting of the manuscript (HS, SC, SM); critical revision of the manuscript for important intellectual content (AH, SC, SM); statistical analysis (HS, SM); provision of study materials or patients (HS); and supervision (HS, SM).
Send Correspondence to: Heidi Schwarzwald, MD, MPH, Texas Children's Health Plan, 700 North Sam Houston Pkwy West, Houston, TX 77067. E-mail: hlschwar@texaschildrens.org.

REFERENCES

1. Visser SN, Danielson ML, Bitsko RH, et al. Trends in the parent-report of health care provider-diagnosed and medicated attention-deficit/hyperactivity disorder: United States, 2003-2011. *J Am Acad Child Adolesc Psychiatry.* 2014:53(1):34-46.e2. doi: 10.1016/j.jaac.2013.09.001.
2. American Academy of Pediatrics; Committee on Quality Improvement; Subcommittee on Attention Deficit/Hyperactivity Disorder. Clinical practice guideline: diagnosis and evaluation of the child with attention deficit/hyperactivity disorder. *Pediatrics*. 2000;105(5):1158-1170.
3. American Academy of Pediatrics; Committee on Quality Improvement; Subcommittee on Attention Deficit/Hyperactivity Disorder. Clinical practice guideline: treatment of the school-aged child with attention-deficit/hyperactivity disorder. *Pediatrics*. 2000;108(4):1033-1044.
4. American Academy of Pediatrics; Subcommittee on Attention Deficit/Hyperactivity Disorder. ADHD: clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics*. 2011;128(5):1007-1022. doi: 10.1542/peds.2011-2654.
5. HEDIS 2014. NCQA website. www.ncqa.org/hedis-quality-measurement/hedis-measures/hedis-2014. Accessed April 28, 2016.
6. Sankaranarayanan J, Puumala SE, Kratochvil CJ. Diagnosis and treatment of adult attention-deficit/hyperactivity disorder at US ambulatory care visits from 1996 to 2003. *Curr Med Res Opin.* 2006;22(8):1475-1491.
7. Ray GT, Levine P, Croen LA, et al. Attention-deficit/hyperactivity disorder in children: excess costs before and after initial diagnosis and treatment and cost differences by ethnicity. *Arch Pediatr Adolesc Med.* 2006;160(10):1063-1069.
8. Geltman PL, Fried LE, Aresnault LN, et al. A planned care approach and patient registry to improve adherence to clinical guidelines for the diagnosis and management of attention-deficit/hyperactivity disorder. *Acad Pediatrics.* 2015;15(3):289-296. doi: 10.1016/j.acap.2014.12.002.
9. Gardner LI, Marks G, Craw JA, et al; Retention in Care Study Group. A low-effort, clinic-wide intervention improves attendance for HIV primary care. *Clin Infect Dis*. 2012:55(8):1124-1134.
10. Hatoun J, Bair-Merritt M, Cabral H, Moses J. Increasing medication possession at discharge for patients with asthma: the Meds-in-Hand Project. *Pediatrics.* 2016;37(3):e20150461. doi: 10.1542/peds.2015-0461.