



Published in final edited form as:

Expert Rev Neurother. 2012 May ; 12(5): 501–503. doi:10.1586/ern.12.37.

How can the internet help improve community-based pediatric ADHD care?

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Pediatricians are the primary providers of care for children with Attention Deficit Hyperactivity Disorder (ADHD) in the US [1]. The American Academy of Pediatrics (AAP) has derived a set of consensus guidelines with recommended ADHD care practice behaviors for pediatricians [2–4]. According to the AAP guidelines, evidence-based ADHD care requires (1) the collection of parent and teacher rating scales to assess ADHD symptoms and impairment during the assessment process (AAP action statement #2); (2) an evaluation for comorbid conditions (AAP action statement #3); and (3) during treatment, the pediatrician should titrate medication quickly and then monitor medication response periodically thereafter optimally using objective reports of child behavior and side effects (AAP action statement #6). Research indicates either directly [5] or circumstantially [6,7] that adopting these AAP-recommended practice behaviors leads to better treatment outcomes for children with ADHD.

Unfortunately, most pediatricians find it difficult and fail to implement these AAP-recommended ADHD practice behaviors in community-based practice settings [8–10]. Indeed, the AAP-recommended ADHD practice behaviors are quite complex to implement in a typical office setting. In order to implement, pediatricians must have the appropriate background knowledge to identify appropriate rating scales for ADHD assessment and treatment monitoring. Once the scales are selected, pediatricians must take time to educate parents about the need to collect parent and teacher ratings of their child's behavior. Then pediatricians, in collaboration with the parent, must plan how to distribute and collect completed ratings from parents and teachers. Once returned, the rating scales need to be scored. Finally, the pediatrician needs to interpret the rating scales making determinations whether ADHD is present during assessment or whether treatment is effective during ADHD treatment. In addition to being a complex process, this effort typically goes un- or under-reimbursed.

If pediatricians are going to be able to provide a high quality of ADHD care, tools are needed to assist them with the diagnostic and treatment processes. In fact, the AAP recognized the need for such tools when they issued the first set of ADHD guidelines. In response, the AAP created an ADHD toolkit that included recommended parent and teacher rating scales for assessment and treatment, scoring sheets, and written care management plans. Unfortunately, the publication and dissemination of these toolkits did little to improve ADHD care [8–10]. Clearly, additional tools that will even further simplify the ADHD care process and decrease the burden upon physicians are necessary. One category of such tools are ADHD web portals created for pediatricians [11,12].

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Disclosure: Jeffery N. Epstein, Ph.D. is the developer of the ADHD web portal (www.myADHDportal.com) and along with his medical institution (CCHMC) owns this intellectual property.

Web portals are internet sites that can be multi-functional but primarily facilitate the collection of parent- and teacher- rating scales during the ADHD assessment and treatment processes. Once such web portal (i.e., myADHDportal.com) has been shown to be effective at improving pediatrician-delivered ADHD care [12]. The myADHDportal.com software is the primary component of a comprehensive online intervention that combines quality improvement methodology with an innovative web-based portal to promote and support the systematic use of the AAP ADHD guidelines in typical community-based pediatric settings. Online learning modules review the AAP ADHD guidelines and their rationale. Interactive online training modules train pediatricians and their staff to use the myADHDportal.com software and an online wizard (i.e., a user interface that presents a user with a sequence of dialog boxes that lead the user through a series of well-defined steps) assists the entire office staff to create a customized patient flow for ADHD care for their office. Once trained, pediatricians invite parents and teachers to complete parent and teacher rating scales online. The portal automatically scores rating scales in real time and provides pediatricians with graphical and tabular reports and informative warnings when a patient appears to be having problems with treatment (e.g., manifestation of side effects or behavioral deterioration). The myADHDportal.com software also facilitates online communication between parents, teachers, and pediatricians during the assessment and treatment process. A report card feature continuously updates data regarding pediatrician practice behavior thereby allowing pediatricians to gauge how well they are adhering to the AAP ADHD guidelines. Finally, pediatricians and office staff are taught to use quality improvement strategies (e.g., conducting Plan-Do-Study-Act cycles) to problem-solve systemic glitches and continually improve the ADHD care system. An online wizard facilitates PDSA cycles by suggesting evidence-based PDSAs for targeting specific ADHD-related care behaviors that have worked at other practices.

In addition to being a key ingredient in improving the quality of ADHD care, pediatricians express high levels of consumer satisfaction with web portals [12]. However, it is also evident that there are clear obstacles to their integration into typical pediatric settings. One of the biggest obstacles repeatedly cited by pediatricians is the lack of integration between online portals and existing electronic medical record systems. That is, most web portals are stand-alone systems and do not interface with electronic medical records. No EMR, to date, has developed a web portal with similar functionality to that described above that is fully integrated into an EMR. Integration relies on printing reports from the ADHD web portal for electronic capture or exporting web portal reports electronically for attachment to an EMR patient record. Either method requires additional time and effort for pediatricians and their staff. It also requires practices to interact with dual electronic medical records for their patients with ADHD. This is often cited as an inconvenience by physician users. In the future, we expect integration between web portals and EMRs to improve thereby making it easier for pediatric practices to adopt these technologies.

Another obstacle cited by pediatricians is internet access. While most pediatricians and teachers do have internet access, internet access for patient can be problematic. In particular, some patients, particularly those located at practices serving low income patient populations, may lack internet access in their home. However, internet access in US homes is increasing. Recent statistics suggest that 74% of US homes have internet access. Even for those without internet access in their homes, there are always other alternatives for accessing the internet (e.g., libraries, schools). Moreover, most web-based portals contain functionality for print ratings for parent and/or teacher completion as well as the ability for office staff to enter completed ratings into the web portal.

Despite these obstacles, ADHD web portals have several inherent benefits. First, as cited above, pediatricians like the clinical utility of ADHD web portals and believe that it makes

ADHD care much more efficient and practical. Second, many of the web portal interventions come with American Board of Pediatrics Part IVb Maintenance of Certification credits. Hence, by adopting the web portal, pediatricians end up fulfilling mandatory credentialing requirements. Finally, web portals provide a potential opportunity for increasing practice revenues. With a few geographical and/or payor exceptions, physicians may bill payors for the collection and interpretation of rating scales (i.e., 96110 billing code) used during the ADHD assessment and treatment process. Receipts from 96110 billing range from \$10 to \$40 per scale depending on the payor. Given that the web portal facilitates and dramatically increases the collection of these rating scales, a community-based practice can generate additional revenues that not only cover the cost of the portal but may also significantly augment a practice's revenues.

ADHD web portals are likely to be an essential tool for the provision of quality ADHD care in the future. EMRs are likely to change to accommodate web portal for ADHD and other conditions by either integrating web portals into EMR software or by accommodating web portals and their output within the EMR software. As web portals become increasingly integrated with EMRs, we believe that their use in community-based pediatric settings will become increasingly pervasive. As web portal usage increases, functions and features of web portals are likely to expand. Some web portal versions already offer additional functionalities such as patient education, enhanced communication between parents, teachers, and physicians, and CME-approved didactics. Many other features can be envisioned. For example, decision aids that facilitate physician-parent communication during key ADHD decision processes (e.g., medication or no medication) would be relatively straightforward to integrate. Also, a tool that facilitates the development and/or implementation of behavioral interventions (e.g., daily report card) could assist families to institute evidence-based psychosocial interventions. With increased functionality and better integration into EMRs, we are likely to see widespread adoption of ADHD web portals which will likely improve the quality of ADHD care for patients nationwide.

References

1. Bernal P. Hidden morbidity if pediatric primary care. *Pediatr Ann.* 2003; 32:413–418. [PubMed: 12846020]
2. American Academy of Pediatrics. Clinical practice guideline: Diagnosis and evaluation of the child with Attention Deficit/Hyperactivity Disorder. *Pediatrics.* 2000; 105:1158–1170. [PubMed: 10836893]
3. American Academy of Pediatrics. Clinical practice guideline: Treatment of the school-aged child with Attention Deficit/Hyperactivity Disorder. *Pediatrics.* 2001; 108:1033–1044. [PubMed: 11581465]
4. American Academy of Pediatrics. ADHD: Clinical practice guideline for the diagnosis, evaluation, and treatment of Attention - Deficit/Hyperactivity Disorder in children and adolescents. *Pediatrics.* 2011; 128:1–16. [PubMed: 21646265]
5. Epstein JN, Rabiner D, Johnson DE, et al. Improving Attention-Deficit/Hyperactivity Disorder treatment outcome through use of a collaborative consultation service by community-based pediatricians: A cluster randomized trial. *Arch Pediatr Adolesc Med.* 2007; 161:835–840. [PubMed: 17768282]
6. Jensen PS, Hinshaw SP, Swanson JM, et al. Findings from the NIMH Multimodal Treatment Study of ADHD (MTA): implications and applications for primary care providers. *J Dev Behav Pediatr.* 2001; 22:60–73. [PubMed: 11265923]
7. Epstein JN, Langberg JM, Lichtenstein PK, et al. Attention-Deficit/Hyperactivity Disorder (ADHD) outcomes for children treated in community-based pediatric settings. *Arch Pediatr Adolesc Med.* 2010; 164:160–165. [PubMed: 20124145]
8. Rushton JL, Fant KE, Clark SJ. Use of practice guidelines in the primary care of children with attention-deficit/hyperactivity disorder. *Pediatrics.* 2004; 114:e23–28. [PubMed: 15231969]

9. Chan E, Hopkins MR, Perrin JM, Herrerias C, Homer CJ. Diagnostic practices for attention deficit hyperactivity disorder: A national survey of primary care physicians. *Ambulatory Pediatrics*. 2005; 5(4):201–208. [PubMed: 16026184]
10. Gardner W, Kelleher KJ, Pajer K, Camp JV. Follow-up care of children identified with ADHD by primary care clinicians: A prospective cohort study. *J Pediatr*. 2004; 145:767–771. [PubMed: 15580198]
11. Sargent J. Web-based assistance for physicians caring for children with ADHD. *Eff Clin Pract*. 2001; 4:127–135. [PubMed: 11434076]
12. Epstein JN, Langberg JM, Lichtenstein PK, Kolb R, Altaye M, Simon JO. Use of a internet portal to improve community-based pediatric ADHD care: A cluster randomized trial. *Pediatrics*. 2011; 128:e1201–e1208. [PubMed: 22007005]

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