

Special Innovation Feature, August 2015

Introducing electronic screening tools for developmental delay and autism into pediatric primary care

SUMMARY

Screenings for developmental delays and autism in primary care pediatricians' offices are an important tool for early identification, intervention, and referral to appropriate services. As part of Pennsylvania's Children's Health Insurance Program Reauthorization Act (CHIPRA) Quality Demonstration Grant, The Children's Hospital of Philadelphia (CHOP) implemented electronic screening in 12 of its pediatric primary care sites between 2011 and 2013. Adoption of electronic screening methods for developmental delay and autism helped improve efficient documentation and tracking of screening rates. The rapid availability of screening results, along with referral tools and other decision-support tools that are embedded in the Electronic Health Record (EHR), may also increase timely access to early intervention services.

Problems Addressed

- **Failure to identify developmental delays and autism and to intervene early can worsen developmental outcomes and impede school readiness.** Developmental delays can put children at increased risk of behavior disorders and other medical issues. Health care providers do not typically identify all children with developmental delays or autism, particularly for children under 3 years of age.
- **Paper-based screening is prone to errors.** When busy primary care offices must manually decide which patients are eligible for screening, administer the screening tools using paper and pencil, score the screening tools by hand, and enter the results into EHRs, developmental screenings may not occur at all appropriate age intervals or may not be properly documented.

What the Staff Did

CHOP automated developmental screening in pediatric primary care offices in its Care Network in phases.

- In 2008, four urban offices implemented a new method of electronic screening for developmental delay and autism as part of a Centers for Disease Control and Prevention (CDC)-funded study. Families completed screening questionnaires using paper and pencil, and providers entered the results into the electronic health record (EHR) for automated scoring. This hybrid paper/electronic screening method did not include any sort of automated age- or visit type-based triggers for questionnaire assignment, and it relied upon registrars, nurses, and/or providers to determine whether it was appropriate to distribute a paper developmental or autism screening tool to the family. The hybrid method was adopted by additional practices after mid-2010.
- In July 2011, as part of Pennsylvania's CHIPRA Quality Demonstration Grant, 12 of CHOP's primary care offices began implementing a **fully-automated electronic screening system** to streamline developmental and autism screening. These 12 offices ranged from an urban setting in Philadelphia with 30 attending physicians and nurse practitioners, 70 resident physicians, and approximately 70 percent of patients covered by Medicaid to a suburban setting with 2 physicians and approximately 21 percent of patients covered by Medicaid. Sites gradually transitioned to the new system between 2011 and 2013, so the two different methods (hybrid paper/electronic and fully-automated electronic) overlapped within the network during that period. By 2014, all 12 practices had implemented expanded fully-

automated screenings to include postpartum depression, school-age behavioral concerns, and adolescent depression, as shown in the below table.

Table 1. Fully-electronic screenings: timing and tools

	Screening Well-Child Visits	Screening Tool Used
Developmental Delay	9, 18, 24, and 30 months	Survey of Well-Being of Young Children (SWYC) Developmental Milestones
Autism	18 and 24 months	Modified Checklist for Autism in Toddlers (M-CHAT)
Postpartum Depression	2 months	Edinburgh Postnatal Depression Scale (EPDS)
School-Age Behavioral Concerns	9 years	Pediatric Symptom Checklist – 17 Items (PSC-17)
Adolescent Depression	16 years	Patient Health Questionnaire Modified for Teens (PHQ-9 Modified)

- **The fully-automated electronic screening method has been expanded across CHOP’s network.** In response to the positive reactions from patients, families, providers, and all office staff, as well as the clinical value of the screening and decision-support tools, this fully-automated screening process is now in use at all of CHOP’s 31 primary care sites across southeastern Pennsylvania and southern New Jersey. From July 2011 onward, more than 130,000 questionnaires have been completed by patients and families using this system.

Fully-automated electronic screening –

- Identified all children ages 9 to 33 months as eligible for screenings at their routine well-child visits.
- Linked with the practices’ EHRs so that families were able to use the EHR’s patient portal to complete the screening questionnaires at home before the visit.
- Prompted registrars during the check-in process of screening-eligible patients who had not already completed the screenings to load screening questionnaires on tablet computers. Rules built into the EHR software determined which questionnaire forms were presented on the tablets, taking into account the patient’s age and a correction for gestational age (up to 24 months), as needed for children born prematurely, for the developmental and autism

screenings. The registrars then gave the tablets to families to start answering the questions in the waiting room. If families finished their questionnaires while in the waiting room, they returned the tablets to the registrars. If they did not finish before they were called back to the exam room, they took the tablets into the exam room.

- Instantly scored screeners and displayed results in the child’s EHR chart for the provider to review at that visit.
- Displayed a variety of tailored clinical decision-support tools (such as automated referral letters to Early Intervention Program resources and age-appropriate family handouts) for the provider to access as appropriate.

Did It Work?

Electronic screening has resulted in better screening practices.

- **Documentation of screening improved.** Completed screenings no longer went undocumented because providers did not have time to enter the results in the EHR.
- **Practices were able to track their screening rates more easily and accurately.** Providers reported that the fully-automated electronic system minimized the amount of time that they spent scoring or entering results. Practices could also more confidently calculate their screening rates. This allows them to monitor whether they are meeting American Academy of Pediatrics (AAP) and Medicaid/Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) screening guidelines and work to improve their rates. Reports can be broken down by office location, provider name, type of screening, date range, etc. The electronic system also supports billing during the screening encounter and the ability to review and compare results at later dates.
- **CHOP was able to report screening rates more accurately.** Developmental Screening in the First 3 Years of Life is a part of the Core Set of Children’s Health Care Quality Measures for Medicaid and CHIP. More accurate documentation at the practice level translates to more reliable data for the State Medicaid agency to use for reporting.
- **Families reported positive experiences with the screening process.** Families reported that the electronic system was easy to use and it allowed them to feel more involved in assessing their children’s developmental progress.

The electronic screening system's capture of results in real time and the inclusion of referral resources in the system's clinical decision-support tools should lead to higher use of appropriate developmental and behavioral services. Because this information requires data beyond what is available in CHOP's EHR, CHOP is partnering with the Office of Medical Assistance Programs at the Pennsylvania Department of Human Services to see if the electronic screening system had an impact on use of Early Intervention Program services. CHOP is matching clinical patient data from its EHR (including well-child visits, screening results, and other indicators of an identified developmental concern or referral) with Early Intervention Program claims data. CHOP expects to complete this analysis by late 2015, with the results expected in spring 2016.

Adoption Considerations

Other practice networks thinking about adopting electronic screening may wish to consider:

- **Phasing in implementation.** CHOP began with the hybrid paper/electronic screening method with four practices, and then tried out the fully-automated

electronic system with 12 practices before going system-wide. Although practices were able to go directly to the fully-automated electronic system without first using the hybrid method, ramping up the number of practices over time allowed CHOP to work through the kinks before spreading it.

- **Establishing systems to track and act on screening data routinely.** Monitoring practice performance will only improve screening rates if staff act on the data. Put systems in place to work with providers whose patients have not completed screenings and follow up with parents of children who have not completed screenings.
- **Using the same technology and workflow process to implement multiple screeners.** CHOP created a technology and workflow that was suitable for multiple types of screeners. This approach allowed CHOP to expand easily the number of screenings that used the fully-automated electronic screening system without additional training.

Endnote

1. Guevara JP, Gerdes M, Localio R, et al. Effectiveness of developmental screening in an urban setting. *Pediatrics*. 2013;131(1):30-37.

LEARN MORE

This Special Innovation Feature was produced as part of the national evaluation of the CHIPRA Quality Demonstration Grant Program, a set of 10 grants awarded by the Centers for Medicare & Medicaid Services to improve the quality of health care for children enrolled in Medicaid and the Children's Health Insurance Program.

Additional information about the national evaluation and the CHIPRA quality demonstration is available at <http://www.ahrq.gov/chipra/demoeval/>.

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