



Measure Fact Sheet – The AHRQ-CMS Pediatric Quality Measures Program (PQMP)

## Measure: Developmental Screening Follow-up: Follow-up Referral After Positive Developmental Screen

Measure Developer: Pediatric Measurement Center of Excellence (PMCoE)

Numerator	Denominator	Exclusions	Data Source(s)
Patients who received a referral for follow-up evaluation or care by the screening clinician within 7 calendar days of receiving a positive developmental screening result.	All patients aged 6 months to 36 months who received a positive developmental screening result or an indication from the family that there is a developmental concern.	Patients who have already received or are receiving therapy, intervention, or education that would also be applicable for developmental delay follow-up care.	Electronic health record (EHR); paper medical record.

### Measure Importance

According to the Centers for Disease Control and Prevention (CDC), 13 percent of children in the United States have developmental or behavioral disabilities.<sup>1</sup> However, according to the U.S. Department of Education, fewer than half of children who have developmental delays are identified prior to starting school.<sup>2</sup>

It has been reported that physicians fail to identify and refer 60 to 90 percent of children with developmental delays in a timely manner.<sup>3</sup> An implementation study of the American Academy of Pediatrics (AAP) recommendations for developmental screening and referrals found that referral rates among children with failed screens were low, averaging 61 percent over the course of the study, with high variability in practice-specific referral rates, which ranged from 27 to 100 percent.<sup>4</sup>

Further, the mean time between identification of a developmental delay and referral for follow-up services has been reported to be more than 5 months.<sup>5</sup>



## Evidence Base for the Focus of the Measure

The American Academy of Pediatrics (AAP) policy statement, Identifying Infants and Young Children with Developmental Disorders in the Medical Home: an Algorithm for Developmental Surveillance and Screening,<sup>6</sup> describes the importance of early identification and treatment of children with neurodevelopmental and behavioral problems to their well-being and development. In addition, the following clinical recommendation statement is taken verbatim from the AAP policy statement referenced above:

“If screening results are concerning, the child should be scheduled for developmental and medical evaluations. They should be scheduled as quickly as possible, and professionals should coordinate activities and share findings.”<sup>6</sup>

## Advantages of the Measure

- This measure is specified for construction in electronic health records (EHRs).
- This measure has also been specified to be constructed to assess performance through manual chart review.
- This measure enhances the developmental screening measure in the CHIPRA initial core set, fulfilling the critically important referral/follow-up component of screening.
- This measure is publicly available for noncommercial use.

## Levels of Aggregation Applicable to the Measure

This measure is intended for aggregation and comparison at the State, regional, payment model, health plan, provider, and practice levels.

## Reliability and Validity of the Measure

- Pilot reliability testing of the eMeasure was conducted in 20 randomly sampled patient records with a completed developmental screen between July 2011 and April 2014. Patients were selected from practices and early intervention programs in 13 counties in Pennsylvania and New Jersey.
- Parallel forms reliability eMeasure testing was performed at one site, and a total of 224 developmental screens were abstracted both electronically and manually. Reliability was assessed by comparing the eMeasure output with abstraction of documentation from the same charts.
- Manual chart abstractions were performed in the primary care networks of four hospitals in the Chicago area. A chart abstraction tool and algorithm were developed and disseminated to sites. A total of 141 charts were reviewed, with each chart being reviewed by two research nurses. Reliability and validity were assessed.
- Reliability of the measure for manual chart abstraction was assessed by evaluating agreement between the two nurse abstractors' assessments of each of the measure's elements and assessments of measure performance.

- Validity was assessed through direct assessment of the fields for each of the measure elements and their use in the EHR.
- The face validity of the measure was assessed by an expert technical panel of key stakeholders and through a public comment and was determined to have both understandability and face validity for key developmental screening follow-up stakeholders.<sup>7</sup>

## Measure Testing

- Feasibility of the eMeasure requires that all of the elements of the measure are available in structured, queryable fields and that these fields are used for routine documentation. Feasibility testing was conducted in the primary care networks of the Chicago Pediatric Quality and Safety Consortium (CPQSC), which comprises five Chicago-area hospitals: Advocate Lutheran General Children's Hospital, Advocate Christ Hope Children's Hospital, John H. Stroger Cook County Hospital, Mt. Sinai Children's Hospital, and Robert and Anne Lurie Children's Hospital. A Data Element Table (DET) tool was used to assess the sites' EHR systems, which included Epic, Cerner, and Allscripts TouchWorks.
- Feasibility also was assessed in a customized electronic system used by practices and early intervention programs in 13 counties in Pennsylvania and New Jersey and by a North Carolina private pediatric practice with a customized EHR based on eClinicalWorks.
- Reliability and validity were assessed in a customized electronic system with coverage extending across practices and early intervention programs in 13 counties in Pennsylvania and New Jersey and a North Carolina private pediatric practice with a customized EHR based on eClinicalWorks.

## Selected Results from Tests of the Measure

- Feasibility testing indicated that while many demographic data elements are currently captured in structured data fields in the EHR, some important data elements required to calculate this measure as an eMeasure are not available in structured fields in the EHR; therefore, this measure is not currently feasible as an eMeasure in those EHR systems. However, these elements are documented and available in the paper and electronic medical records; therefore, this measure is feasible for manual chart abstraction.
- The measure was determined to have all of the measure elements in structured, queryable fields in a customized electronic system, and this EHR system was able to construct a measure report to assess clinical performance for this eMeasure. Through detailed review of the results and reliability testing and comparison with manual chart review, it was determined that documentation in relevant structured fields was missing 25 percent of the time when referrals were made. Clinical documentation workflow changes will improve the reliability of the eMeasure reports.
- Parallel forms reliability eMeasure testing indicated that in one site, while the eMeasure was technically feasible, clinicians were not using the structured, queryable fields; therefore, the eMeasure was not implementable at that site.

- In one site with a customized EHR system, where it was feasible to construct the measure as an eMeasure, approximately 55 percent of sampled charts with a positive developmental screen contained documentation that a referral to follow-up care was provided within 7 days, which is consistent with most reported studies.<sup>4</sup>
- For the measure specified for manual chart abstraction, overall agreement between manual chart reviewers was 73 percent ( $\kappa=0.67$ ).
- In the CPQSC, performance of the measure was assessed through manual chart abstraction and varied across sites from approximately 30 percent to 100 percent. Overall, across sites assessing the measure through manual chart abstraction, only 39 percent of children who had a positive developmental screen received a follow-up referral within 7 days.

## Current Measures

- The Developmental Screening Follow-up Measure - Follow-up Referral After Positive Developmental Screen, as specified by the Pediatric Measurement Center of Excellence (PMCoE) Developmental Screening Leadership Team and Expert Technical Panel, is in use in the American Board of Pediatrics (ABP) Maintenance of Certification (MOC) – Part 4, Performance Improvement Module (PIM) for use by physicians in the process of Recertification.
- Pediatric physicians must conduct a PIM in the process of recertification and can select to conduct 100 chart reviews using the Developmental Screening Follow-up Referral After Positive Developmental Screen measure specifications, assess their own performance, implement improvement, and conduct 100 chart reviews afterwards to assess improvement. This is then entered into the ABP MOC PIM electronic system.
- The ABP found this measure to be an effective and usable measure within the structure of the MOC PIM for physician recertification.

## Caveats

- Use of the eMeasure is limited to sites where the EHR includes all of the measure elements in structured, queryable fields and where routine documentation of the relevant clinical information is done in these structured, queryable fields.
- There is a possibility that missing data or ambiguous information stored in a provider's EHR will lead to calculation errors and low performance on the measure.
- Workflow modifications or changes to the site's EHR system may be necessary in order to calculate the measure.

## More Information

- AHRQ: [CHIPRAqualitymeasures@ahrq.hhs.gov](mailto:CHIPRAqualitymeasures@ahrq.hhs.gov)
- PMCOE: Lisa Krams, [lkrams@asp.org](mailto:lkrams@asp.org); Ramesh Sachdeva, [rsachdeva@aap.org](mailto:rsachdeva@aap.org)
- Coming soon: Link to measure details on the AHRQ Web site.

For more information about the PQMP, visit [www.ahrq.gov/chipra](http://www.ahrq.gov/chipra).

## Notes

<sup>1</sup>Boulet SL, Boyle CA, Schieve LA. Health care use and functional impact of developmental disabilities among US children, 1997-2005. *Arch Pediatr Adolesc Med* 2009; 163(1):19-26.

<sup>2</sup>U.S. Department of Education, Office of Special Education Programs [Internet], Data Analysis System (DANS), Part C Child Count, 1997-2006.

<sup>3</sup>National Collaborative for Innovation in Quality Measurement Center of Excellence (NCINQ). Developmental screening in children. Developed for NCINQ for use in the AHRQ PQMP Consortium; 2011.

<sup>4</sup>King TM, Tandon SD, Macias MM, et al. Implementing developmental screening and referrals: lessons learned from a national project. *Pediatrics* 2010; 125(2):350-60.

<sup>5</sup>Tang BG, Feldman HM, Huffman LC, et al. Missed opportunities in the referral of high-risk infants to early intervention. *Pediatrics* 2012; 129(6):1027-34.

<sup>6</sup>American Academy of Pediatrics. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. *Pediatrics* 2006; 118(1):405-20.

<sup>7</sup>The topic, language, specifications, and results were reviewed by a 21-member Expert Workgroup comprising a wide range of stakeholders including pediatricians, family physicians, State Medicaid agencies, physician assistants, Early Intervention, Head Start, child/adolescent psychologists, ABCD programs, neurologists, patient-family members, and researchers. The Expert Workgroup technical panel was solicited for feedback on importance, relevance, understandability, and usability throughout the development process. Further, using the networks of Expert Workgroup members, this measure was put through a Public Comment period and feedback on the variables above as well as additional general feedback was requested.

The Children's Health Insurance Program Reauthorization Act (CHIPRA) called for establishment of a Pediatric Quality Measures Program (PQMP) as a follow-up to identifying the initial core set of children's health care quality measures. This fact sheet was produced by the Agency for Healthcare Research and Quality (AHRQ), based on information provided by the AHRQ-CMS Pediatric Measurement Center of Excellence (PMCoE), which was funded by an AHRQ/CMS grant as a CHIPRA Center of Excellence. A listing of all submitted PQMP Centers of Excellence can be found at [www.ahrq.gov/CHIPRA](http://www.ahrq.gov/CHIPRA). All measures are publicly available for noncommercial use.



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