
Introducing Electronic Screening Tools for Developmental Delay and Autism into Pediatric Primary Care: Effects on Screening Documentation

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Brenda Natzke, M.P.P. • Anna Christensen, Ph.D.
Mathematica Policy Research

Elizabeth Brooks, M.P.H., M.S.S.P. • Marsha Gerdes, Ph.D.
PolicyLab at the Children's Hospital of Philadelphia

Background: Issue

- **Early identification of risk factors can:**
 - Lead to early intervention
 - Reduce the risk of poor developmental outcomes
 - Enhance school readiness
- **Paper-and-pencil screening can lead to:**
 - Missed opportunities for screening
 - Delays in scoring and interpretation
 - Failure to document screening in health records
- **Hypothesis—electronic screening may improve:**
 - Screening documentation
 - Screening rates
 - Appropriate referrals

Intervention

Pre-CHIPRA Screening

- **Screening method #1: Centers for Disease Control and Prevention (CDC) study (2008–2010)**
 - Partially electronic method
 - Electronic health records (EHRs) prompted providers to screen for developmental delays and autism at certain well-child visits
 - Screenings completed by paper and pencil
 - Templates used to enter results into EHR for automated scoring
- **After CDC study concluded**
 - Developmental delay tool made available to selected clinics
 - Autism tool made available to all clinics

Guevara J.P., M. Gerdes, R. Localio, Y.V. Huang, J. Pinto-Martin, C.S. Minkovitz, D. Hsu, L. Kyriakou, S. Baglivo, J. Kavanagh, and S. Pati. "Effectiveness of Developmental Screening in an Urban Setting." *Pediatrics*, vol. 131, no. 1, 2013, pp. 30–37.

CHIPRA Screening Intervention

- **Screening method #2: Pennsylvania's CHIPRA project**
 - Began July 2011, with phased implementation in 12 clinics
 - Four clinics from CDC study involved in CHIPRA project
 - Moved from paper-and-pencil or partially electronic to fully electronic screening methods
 - Screening tools for five areas
 - Developmental delay
 - Autism
 - Adolescent depression
 - Postpartum depression
 - School-aged behavioral issues
 - Developmental and autism screening targeted children ages 8 to 33 months who had a 9-, 18-, 24-, or 30-month well-child visit

Fully Electronic Screening

- **Standardized screenings built into EHR**
- **EHR flags alert registration staff for age-appropriate screening at patient check-in for well-child visit**
 - **Alternative: questions available via patient portal before visit**
- **Families answer screening questions on computer in waiting or exam room (or through patient portal at home)**
- **Screening automatically scored; results automatically entered into EHR**
- **Provider can view and act on results during visit**

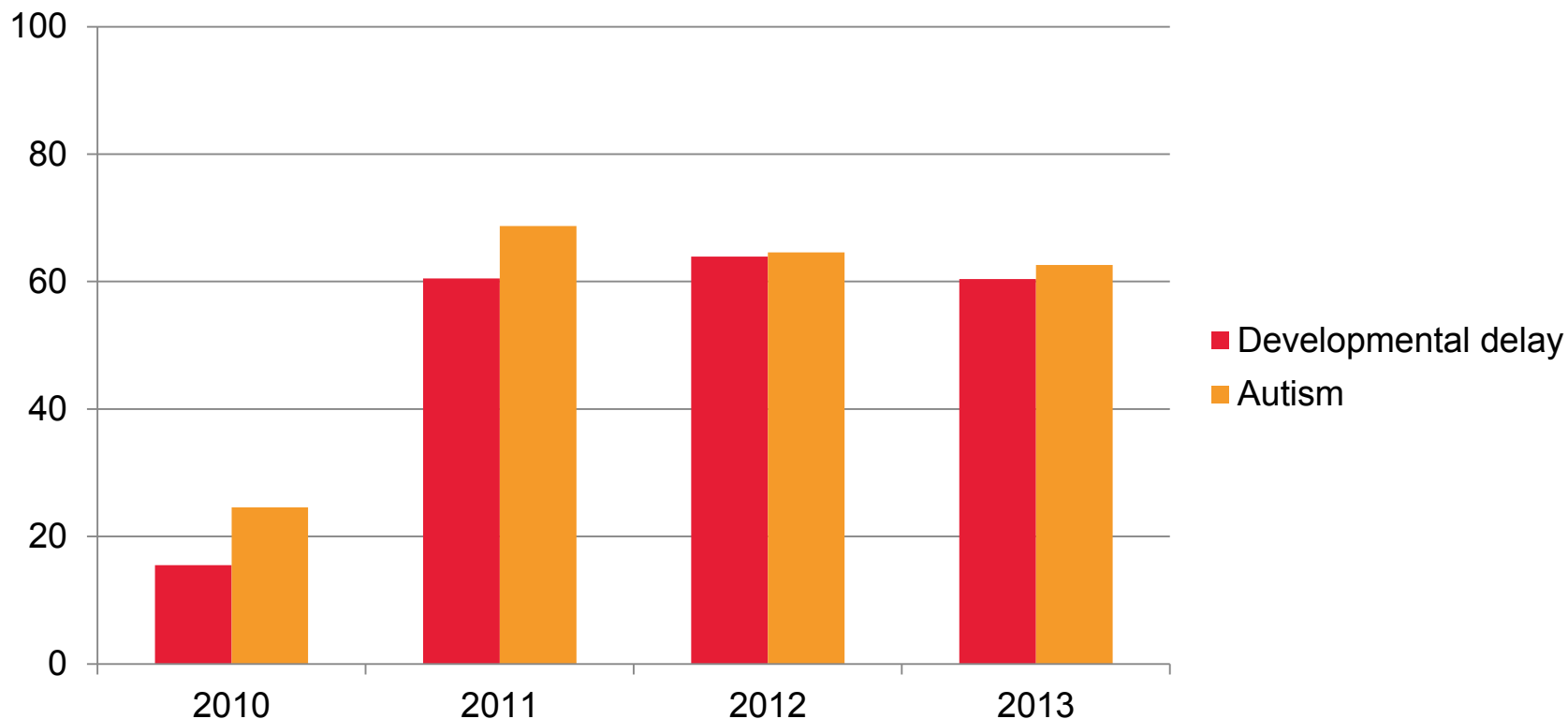
Analysis and Findings

Analysis

- **Data:** The Children’s Hospital of Philadelphia (CHOP) EHR data, and Medicaid eligibility, demographic files
- **Focus:** Medicaid-enrolled patients in 12 clinics
 - Children who had a 9-, 18-, 24-, or 30-month well-child visit and
 - Were eligible for developmental delay and/or autism screener
- **EHR data has three possible outputs**
 - Child received screening
 - Child did not receive screening
 - Unknown whether child received screening
- **Measure:** Percentage of eligible children receiving screening (or not, or unknown) for the baseline year and each calendar year of the study

Findings: 2011 Implementers

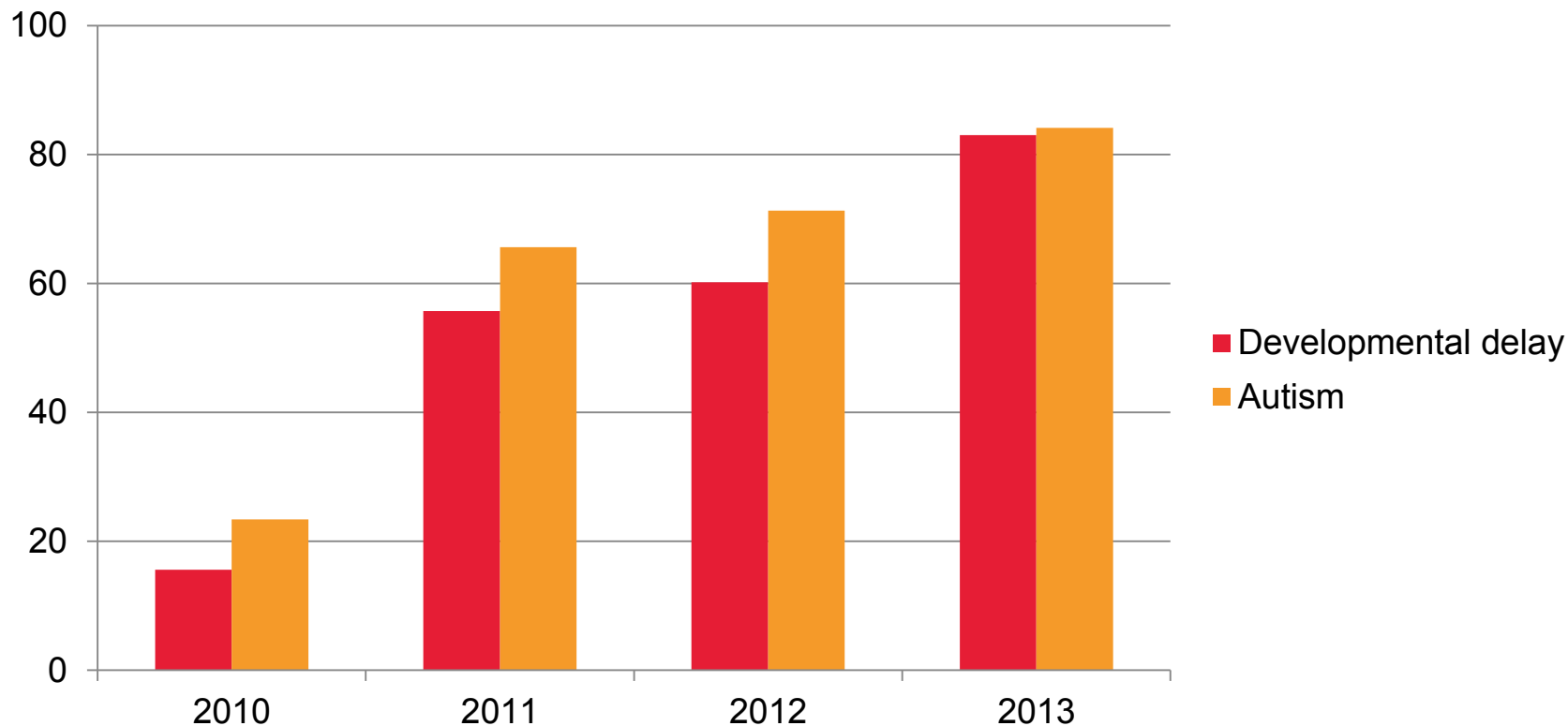
Figure 1. Documented receipt of screening at 18-month well-child visit: percentage of children, 2010–2013



Note: Four practices comprise the 2011 Implementers group.

Findings: 2012 Implementers

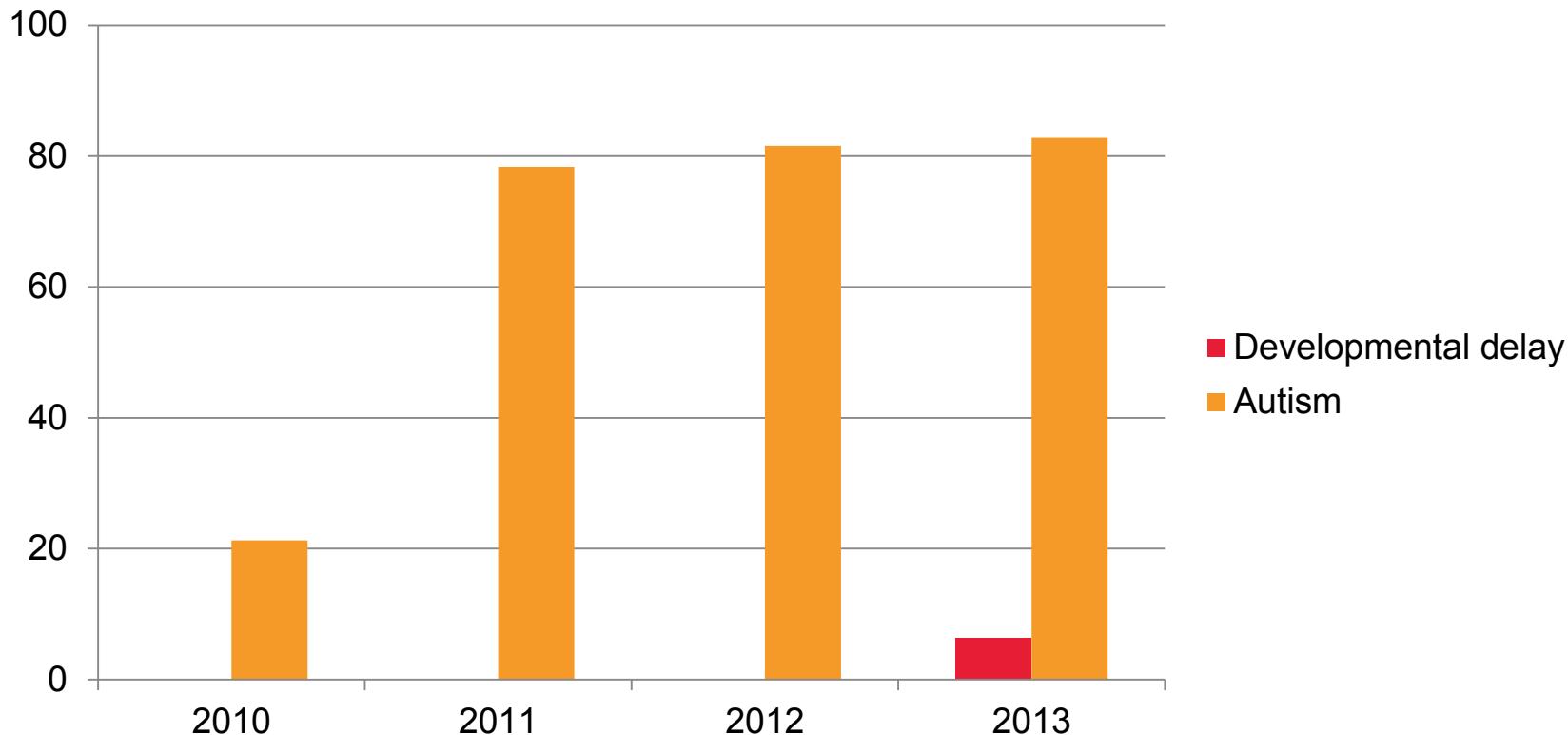
Figure 2. Documented receipt of screening at 18-month well-child visit: percentage of children, 2010–2013



Note: Four practices comprise the 2012 Implementers group.

Findings: 2013 Implementers

Figure 3. Documented receipt of screening at 18-month well-child visit: percentage of children, 2010–2013



Note: Four practices comprise the 2013 Implementers group.

Conclusions

- **CDC study (partially electronic method)**
 - Likely stimulated documentation of screening
 - May account for 2010–2011 increases in documentation rates
- **CHIPRA-funded study (fully electronic)**
 - May have enhanced trend toward more documentation for some practices (see chart for 2012 implementers)
- **Rates of screening documentation for developmental delay are similar to the rates of screening documentation for autism in most practices**

Implications

- **If electronic screening (partial or full) works, then:**
 - **State programs and managed care organizations may be able to provide more accurate information about screening rates**
 - **Practices may be able to refer at-risk children to evaluation and early intervention services more easily or consistently**

Next Steps: Further Analysis

- **PolicyLab at CHOP plans to conduct longitudinal analysis**
 - Including all payers and all office visits from July 2009 to June 2014
 - Using EHR data + Early Intervention claims from state
- **Main research question: does electronic screening improve time to and use of Early Intervention?**
- **Expect to complete analysis in December 2015, with results available in spring 2016**

For More Information

- **Brenda Natzke**
 - BNatzke@mathematica-mpr.com
- **Elizabeth Brooks**
 - BROOKSE1@email.chop.edu
- <http://www.ahrq.gov/policymakers/chipra/demoeval/index.html>

Appendix: CHIPRA Legislation

- **The Children’s Health Insurance Program Reauthorization Act (CHIPRA) of 2009 authorized the CHIPRA Quality Demonstration Grant Program**
 - 10 awardees, 18 states, 52 projects across five categories
 - Funded by the Centers for Medicare & Medicaid Services (CMS) and overseen by the Agency for Healthcare Research and Quality (AHRQ)
 - National evaluation conducted by Mathematica Policy Research, the Urban Institute, and AcademyHealth
- **CMS released Initial Core Set of Children’s Health Care Quality Measures in 2009**
 - Included developmental screening for children under age 3

Appendix: Screenings Implemented

Well-child visit	Age eligibility ¹	Screening domain(s)	Screening tool(s)
2 months	47–107 days (1.5–3.5 months)	Postpartum depression	Edinburgh
9 months	261–364 days (8.5–12 months)	Developmental delay	Ages & Stages Questionnaire, 3 rd Edition ²
18 months	505–640 days (16.5–21 months)	Developmental delay and autism	Ages & Stages Questionnaire, 3 rd Edition ² and M-CHAT
24 months	641–819 days (21–27 months)	Developmental delay and autism	Ages & Stages Questionnaire, 3 rd Edition ² and M-CHAT
30 months	820–1,003 days (27–33 months)	Developmental delay	Ages & Stages Questionnaire, 3 rd Edition ²
9 years	3,101–3,469 days (8.5–9.5 years)	School-age behavioral concerns	PSC-17
16 years	5,475–6,024 days (15.5–16.5 years)	Teen depression	PHQ-9 Modified for Teens

¹ Based on PA Medical Assistance EPSDT visit windows.

² In summer 2013, the SWYC Milestones tool was substituted for the Ages & Stages Questionnaire. It is a public domain tool without copyright issues.