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

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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

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

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• 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

<table>
<thead>
<tr>
<th>Well-child visit</th>
<th>Age eligibility</th>
<th>Screening domain(s)</th>
<th>Screening tool(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 months</td>
<td>47–107 days (1.5–3.5 months)</td>
<td>Postpartum depression</td>
<td>Edinburgh</td>
</tr>
<tr>
<td>9 months</td>
<td>261–364 days (8.5–12 months)</td>
<td>Developmental delay</td>
<td>Ages &amp; Stages Questionnaire, 3rd Edition²</td>
</tr>
<tr>
<td>18 months</td>
<td>505–640 days (16.5–21 months)</td>
<td>Developmental delay and autism</td>
<td>Ages &amp; Stages Questionnaire, 3rd Edition² and M-CHAT</td>
</tr>
<tr>
<td>24 months</td>
<td>641–819 days (21–27 months)</td>
<td>Developmental delay and autism</td>
<td>Ages &amp; Stages Questionnaire, 3rd Edition² and M-CHAT</td>
</tr>
<tr>
<td>30 months</td>
<td>820–1,003 days (27–33 months)</td>
<td>Developmental delay</td>
<td>Ages &amp; Stages Questionnaire, 3rd Edition²</td>
</tr>
<tr>
<td>9 years</td>
<td>3,101–3,469 days (8.5–9.5 years)</td>
<td>School-age behavioral concerns</td>
<td>PSC-17</td>
</tr>
<tr>
<td>16 years</td>
<td>5,475–6,024 days (15.5–16.5 years)</td>
<td>Teen depression</td>
<td>PHQ-9 Modified for Teens</td>
</tr>
</tbody>
</table>

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.