Early Childhood Development: Screening and Surveillance

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Disclosure

• I have no financial disclosures.
Outline

• Why does early childhood development deserve our attention?
• Surveillance and Screening: What are the guidelines?
• Which tools are available?
• What to do when something is abnormal?
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DURING THE FIRST 3 YEARS A CHILD’S BRAIN DEVELOPS 700 NEURAL CONNECTIONS PER SECOND.
Eco-Bio-Developmental Model of Human Health and Disease

Ecology
Becomes biology,
And together they drive development across the lifespan
Up to one-half of American children with developmental delay will not be identified by the time they enter kindergarten.

Most of these children will show mild developmental delays by age two.
Outline

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• **Surveillance and Screening**: What are the guidelines?
  • Which tools are available?
  • What to do when something is abnormal?
Surveillance is a continuous and cumulative process that is used to ensure optimal health outcomes.
POLICY STATEMENT

Identifying Infants and Young Children With Developmental Disorders in the Medical Home: An Algorithm for Developmental Surveillance and Screening

Council on Children With Disabilities
Section on Developmental Behavioral Pediatrics
Bright Futures Steering Committee
Medical Home Initiatives for Children With Special Needs Project Advisory Committee

http://pediatrics.aappublications.org/content/118/1/405.short?rss=1
5 components of surveillance

1. Eliciting and attending to the parents’ concerns
2. Maintaining a developmental history
3. Making accurate and informed observations of the child
4. Identifying the presence of risk and protective factors
5. Documenting the process and findings
Reasons for Closer Surveillance

- **Prenatal/perinatal concerns**
  - Prematurity
  - Traumatic delivery
  - In utero drug exposure
  - IUGR
  - Neonatal infection

- **Family history of developmental delay and autism**

- **Adverse childhood events (ACEs)**
Screening is the use of standardized tools to identify and refine recognized risk
9 months

- Motor skill developmental delays can be reliably identified
- Visual and hearing abilities apparent
- Early communication skills start to emerge
- Good opportunity to prime parents about developmental screening and advise for monitoring
18 months

- Delays in communication and language development are apparent by this age.
- Mild motor deficits that were not apparent at 9 months are more obvious at this age.
- Effective interventions available at this age.
- Symptoms of autism are apparent by now.
30 months

- Recommended for purpose of close evaluation of development
- May catch subtle delays not detected before 2 years of age.
- May not be covered by insurance
- If not offered in your practice recommend doing screening at 24 months to allow for earlier intervention
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Ages & Stages Questionnaire -3

- Parent completed
- 5 domains with ~6 questions each
- Overall section elicits parental concern
- ~85% sensitivity and specificity

GROSS MOTOR

1. If you hold both hands just to balance your baby, does she support her own weight while standing?

   YES  |  SOMETIMES  |  NOT YET

   |   |   |   |
Five Domains

1. Gross Motor Skills
2. Fine Motor Skills
3. Communication
4. Personal-Social
5. Problem Solving
Scoring

1. SCORE AND TRANSFER TOTALS TO CHART BELOW: See ASQ-3 User’s Guide for details, including how to adjust scores if item responses are missing. Score each item (YES = 10, SOMETIMES = 5, NOT YET = 0). Add item scores, and record each area total. In the chart below, transfer the total scores, and fill in the circles corresponding with the total scores.

<table>
<thead>
<tr>
<th>Area</th>
<th>Cutoff</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>13.97</td>
<td></td>
</tr>
<tr>
<td>Gross Motor</td>
<td>17.82</td>
<td></td>
</tr>
<tr>
<td>Fine Motor</td>
<td>31.32</td>
<td></td>
</tr>
<tr>
<td>Problem Solving</td>
<td>28.72</td>
<td></td>
</tr>
<tr>
<td>Personal-Social</td>
<td>18.91</td>
<td></td>
</tr>
</tbody>
</table>


1. Uses both hands and both legs equally well? **Yes** NO 5. Concerns about vision? **YES** No
   Comments:

2. Feet are flat on the surface most of the time? **Yes** NO 6. Any medical problems? **YES** No
   Comments:

3. Concerns about not making sounds? **YES** No 7. Concerns about behavior? **YES** No
   Comments:

4. Family history of hearing impairment? **YES** No 8. Other concerns? **YES** No
   Comments:
Identification and Evaluation of Children With Autism Spectrum Disorders

Chris Plauché Johnson, MD, MEd, Scott M. Myers, MD, and the Council on Children With Disabilities

ABSTRACT

Autism spectrum disorders are not rare; many primary care pediatricians care for several children with autism spectrum disorders. Pediatricians play an important role in early recognition of autism spectrum disorders, because they usually are the first point of contact for parents. Parents are now much more aware of the early
# Autism Screening: 18 and 24 months

**M-CHAT-R™**

Please answer these questions about your child. Keep in mind how your child usually behaves. If you have seen your child do the behavior a few times, but he or she does not usually do it, then please answer no. Please circle yes or no for every question. Thank you very much.

1. If you point at something across the room, does your child look at it? 
   *FOR EXAMPLE, if you point at a toy or an animal, does your child look at the toy or animal?*
   | Yes | No |

2. Have you ever wondered if your child might be deaf?
   | Yes | No |

3. Does your child play pretend or make-believe? 
   *FOR EXAMPLE, pretend to drink from an empty cup, pretend to talk on a phone, or pretend to feed a doll or stuffed animal?*
   | Yes | No |

4. Does your child like climbing on things? 
   *FOR EXAMPLE, furniture, playground equipment, or stairs*
   | Yes | No |

5. Does your child make unusual finger movements near his or her eyes? 
   *FOR EXAMPLE, does your child wiggle his or her fingers close to his or her eyes?*
   | Yes | No |

6. Does your child point with one finger to ask for something or to get help? 
   *FOR EXAMPLE, pointing to a snack or toy that is out of reach*
   | Yes | No |

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M-CHAT Revised with Follow Up

- **M-CHAT-R**
  - Total score <3
    - No follow-up needed unless surveillance or other procedure suggests risk for ASD
  - Total score = 3–7
    - Administer M-CHAT-R Follow-up
      - Total score ≥2 on M-CHAT-R/F: refer for diagnostic evaluation & early intervention
  - Total score ≥8
    - Bypass Follow-up; Refer immediately for diagnostic evaluation & early intervention

1. If you point at something across the room, does _________ look at it?

   **Yes**
   - Please give me an example of how he/she will respond if you point at something. (If parent does not give a PASS example below, ask each individually.)
   - **PASS examples**
     - Looks at object
     - Points to object
     - Looks and comments on object
     - Looks if parent points and says “look!”
   - **FAIL examples**
     - Ignores parent
     - Looks around room randomly
     - Looks at parent’s finger

   - **Yes only to PASS example(s)**
     - PASS
   - **Yes to examples both from PASS and FAIL**
     - Which one does he/she do most often?
     - Most often is **PASS example**
       - PASS
     - Most often is **FAIL example**
       - FAIL

   **No**
   - If you point at something, what does your child typically do?
   - **FAIL examples**
     - Ignores parent
     - Looks around room randomly
     - Looks at parent’s finger
   - **Yes only to FAIL example(s)**
     - FAIL
Outline

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• What to do when something is abnormal?
Evaluation is the process of identifying specific developmental disorders that affect a child.
Reasons for Immediate Referral

• Complete Medical Evaluation
  o Rapid changes in growth parameters
  o Abnormal Neurological Exam
  o Loss of developmental milestones

• Autism evaluation
  o No babbling or pointing or gestures by 12 months
  o No single words by 16 months
  o No 2-word spontaneous phrases by 24 months
  o Loss of language or social skills at any age
Things to do Before Referral

- Vision & Hearing evaluation
- Review Newborn screening results & Growth chart
- Review PMH, family history, social, environmental factors
- Metabolic testing & Lead levels
<table>
<thead>
<tr>
<th>Referral options</th>
<th>Specialists and programs</th>
<th>Evaluation tests and services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive medical evaluation</td>
<td>Primary care physician, pediatric subspecialists (e.g., neurology, neurodevelopmental, developmental/behavioral, genetics)</td>
<td>Objective vision and hearing evaluation, metabolic testing, blood lead level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optional: genetic testing, blood iron level, electroencephalography, brain imaging</td>
</tr>
<tr>
<td>Diagnostic developmental evaluation</td>
<td>Early childhood professionals (e.g., educators, psychologists, social workers, occupational therapists, physical therapists)</td>
<td>Bayley Scales of Infant and Toddler Development, third edition</td>
</tr>
<tr>
<td></td>
<td>Pediatric subspecialists (e.g., neurology, neurodevelopmental, developmental/behavioral)</td>
<td>Woodcock-Johnson Psychoeducational Battery</td>
</tr>
<tr>
<td></td>
<td>Early intervention programs</td>
<td>Stanford-Binet Intelligence Scale</td>
</tr>
<tr>
<td></td>
<td>Public school special education departments (for children older than three years)</td>
<td>Battelle Developmental Inventory</td>
</tr>
<tr>
<td></td>
<td>Early intervention programs</td>
<td>Brigance System</td>
</tr>
<tr>
<td>Local early childhood services</td>
<td></td>
<td>Developmental therapies, social work services, service coordination, transportation assistance, counseling, home visits</td>
</tr>
</tbody>
</table>
Referral Options

- **Early Access**
  - [http://www.earlyaccessiowa.org](http://www.earlyaccessiowa.org)

- **1st Five**
  - [http://www.idph.state.ia.us/1stfive/](http://www.idph.state.ia.us/1stfive/)

- **Child Health Specialty Clinics**
  - [http://www.chsciowa.org](http://www.chsciowa.org)

- **UI Center for Disabilities and Development**
  - [http://www.uichildrens.org/cdd/](http://www.uichildrens.org/cdd/)

- **University of Iowa Children’s Hospital**
  - [http://www.uichildrens.org](http://www.uichildrens.org)

- **Blank Children’s Hospital**
  - [http://www.unitypoint.org/blankchildrens/default.aspx](http://www.unitypoint.org/blankchildrens/default.aspx)
Summary

• Early childhood is a critical time for brain development. Opportunities may be lost if problems are not addressed early.

• Screening tools facilitate identification of developmental problems and may assist in next steps for referral and evaluation.
References


Questions?