**Formal Developmental Screening**

**Case:** You are precepting a pediatric intern in your outpatient general pediatrics clinic. The intern asks you, “How frequently do you do developmental screening? Do you do them at every well child check or just certain ages?”

**Learning Objectives:**
1. Review the AAP recommendations for formal developmental screening
2. Learn the most common methods of developmental screening for both general screening and autism screening
3. Review guidelines for further evaluation after a child fails a developmental screen

**Recommendations for Formal Developmental Screening**

- According to Bright Futures, the AAP recommends formal developmental screening using a reliable and valid screening tool at 9, 18 and 30 months of age
  - If 30 month visit is not covered by insurance, can do screening at 24 month visit
- Autism screening should be done at 18 and 24 months of age
- Developmental surveillance should be done at EVERY well child check
  - Elicit and attend to parental concerns regarding their child’s development
  - Document and maintain a developmental history (age-specific questions are helpful)
  - Make accurate observations of the child
  - Identify risk and protective factors
  - Maintain an accurate record of the findings

**Types of Formal Developmental Screening Tools**

- No universally accepted screening tool appropriate for all populations/ages
- Generally accepted screening tools have a sensitivity and specificity of 70-80%
- Different screening tools may identify different children with varying forms of developmental delay

**General Developmental Screening Tools**

- **Ages and Stages Questionnaires (ASQ)** (commonly used)
  - Parent completed age-specific questionnaires assessing communication, gross motor, fine motor, problem solving and personal adaptive skills
  - Ages: 4-60 months
  - # Questions: 30
  - Time to complete: 10-15 minutes
  - Score: pass/fail in each of 5 domains
  - Languages: English, Spanish, French, Korean
  - Source: [www.brookespublishing.com](http://www.brookespublishing.com)
- Battelle Developmental Inventory Screening Tool (BDI-ST)
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Formal Developmental Screening

- Clinician-administered screen assessing personal social, adaptive, motor, communication and cognitive development
  - Ages: birth to 95 months
  - # Questions: 100
  - Time to complete: 10-15 minutes (<3 yo) or 20-30 minutes (>3 yo)
  - Score: quantitative in 5 domains, cutoff values to recommend referral
  - Languages: English, Spanish
  - Source: www.riverpub.com

  - Bayley Infant Neurodevelopmental Screen (BINS)
    - Clinician administered screen evaluating basic neurologic, receptive/expressive language and cognitive functions as well as fine and gross motor skills
    - Ages: 3-24 months
    - # of Questions: 11-13
    - Time to complete: 10 minutes
    - Score: risk categorization (low, moderate, high) in each domain
    - Languages: English, Spanish
    - Source: http://www.pearsonassessments.com/HaiWeb/Cultures/en-us/site/Community/Psychology/results.htm?Community=CA_MedOT_AI_Screen

  - Brigance Screens
    - Clinician administered screen assessing language, self-help, articulation, gross/fine motor, and social-emotional skills
    - Ages: 0-90 months
    - # of Questions: 8-10
    - Time to complete: 10-15 minutes
    - Score: numerical
    - Languages: English, Spanish
    - Source: www.curriculumassociates.com

  - Child Development Inventory (CDI)
    - Parent completed, measuring social, self-help, motor, language, general development
    - Ages: 18 months – 6 years
    - # Questions: 300
    - Time to complete: 30-50 minutes
    - Score: quantitative, compares to normal values for age
    - Language: English, Spanish
    - More lengthy screening tool
    - Source: www.childdevrev.com

  - Child Development Review – Parent Questionnaire (CDR-PQ)
    - Parent completed, clinician completed, measuring social, self-help, motor, language
    - Ages: 18 mo – 5 yo
    - # Questions: 6 open-ended, 26 multiple choice, 99 questions completed by professional
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Formal Developmental Screening

- Time to complete: 10-20 minutes
- Score: risk categorization (no problem, possible problem, possible major problem)
- More lengthy screening tool
- Language: English, Spanish

- **Denver Developmental Screening Test**
  - Clinician administered, evaluating expressive/receptive language, gross/fine motor, personal/social skills
  - Ages: 0-6 yo
  - # Questions: 125
  - Time to complete: 10-20 minutes
  - Score: risk categorization compared to age-specific norms
  - More lengthy screening tool
  - Language: English, Spanish
  - Source: [www.denverii.com](http://www.denverii.com)

- **Infant Development Inventory**
  - Parent completed, measuring social, self-help, motor, language skills
  - Ages: 0-18 months
  - # Questions: 4 open ended, 87 other
  - Time to complete: 5-10 minutes
  - Score: risk categorization: delayed, not delayed
  - Language: English, Spanish

- **Parents Evaluation of Developmental Status (PEDS)**
  - Parent completed, assessing parent concerns about developmental progress
  - Ages: 0-8 yo
  - # Questions: 10
  - Time to complete: 2-10 minutes
  - Score: risk categorization
  - Languages: multiple
  - Source: [www.pedtest.com](http://www.pedtest.com)

**Autism Screening Tools**

- **Checklist for Autism in Toddlers (CHAT)**
  - Parent completed
  - Ages: 18-24 months
  - # Questions: 14
  - Time to complete: 5 minutes
  - Score: Risk categorization (pass/fail)
  - Languages: English

- **Modified Checklist for Autism in Toddlers (M-CHAT)**
  - Parent completed
  - Ages: 16-48 months
  - # Questions: 23
  - Time to complete: 5-10 minutes
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Formal Developmental Screening

- Score: risk categorization (pass/fail)
- Source: http://www.firstsigns.org/downloads/m-chat.PDF

- **Pervasive Developmental Disorders Screening Test II (PDDST-II) Stage I Primary Care Screener**
  - Parent completed, more intensive test available designed for developmental clinic screening (stage II)
  - Ages: 12-48 months
  - # Questions: 22
  - Time to complete: 10-15 minutes, 5 minutes to score
  - Score: risk categorization (pass/fail)
  - Languages: English

- **Screening Tool for Autism in Two-Year Olds (STAT)**
  - Clinician administered second-level screen
  - Ages: 24-35 months
  - # of Questions: 12
  - Time to complete: 20 minutes
  - Score: risk categorization
  - Languages: English

- **Social Communication Questionnaire (SQC) – formerly the Autism Screening Questionnaire**
  - Parent completed
  - Ages: >4 yo
  - # of Questions: 40
  - Time to complete: 5-10 minutes
  - Score: risk categorization (pass/fail)
  - Languages: English, Spanish
  - Source: www.wpspublish.com

**What if a child fails a screening test?**

- Refer to neurodevelopmental pediatrician or developmental behavioral pediatrician or a psychologist/psychiatrist
- Conduct a medical evaluation
  - Hearing screen
  - Vision screen
  - Growth chart review
  - Review of newborn screen
  - Update family and past medical history and social history
  - May include genetic testing, EEG, metabolic testing or brain imaging
- Evaluate for underlying etiology - identified in 25% of children with developmental delay
  - 50% of kids with global developmental delay and motor delays
  - <5% of kids with isolated language disorders
- Refer to early childhood services/early intervention

Peer Reviewed by Lynne Huffman, MD 2011
References/Resources

• Peds 2006: Policy statement and algorithm for developmental screening in the medical home
  [Link to article]

• Peds 2008: comparison between PEDS and ASQ screening forms
  [Link to article]