EARLY DETECTION OF DEVELOPMENTAL PROBLEMS
Evolution of the Concept and Current Practice-A US Perspective
Paul H. Dworkin, MD
Early Detection of Health and Developmental Problems in Young Children
Centre for Community Child Health
9 March 2010

INTRODUCTION

- More than 4 decades since identification of developmental problems as component of “new morbidity” of US child health practice
- Profound societal change has influenced pediatric practice
  - “Deinstitutionalization”
  - Mainstreaming
  - Medical Home
INTRODUCTION

- High prevalence of developmental problems within pediatric practice setting
- Specific learning disability
- Attention-deficit/hyperactivity disorder
- Speech/language impairment
- Mental retardation
- Cerebral palsy
- Hearing impairment
- Serious emotional disturbance


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GOALS

- Review the evolution of the concept of developmental surveillance and screening in the US
- Describe the US context for the use of such specific strategies as parent-completed questionnaires and professionally-administered tools to facilitate early recognition
- Emphasize the critical importance of linking at-risk children and their families to programs and services

DEVELOPMENTAL PROBLEMS

Rationale for Early Detection

- Critical influence of early childhood years
- Less-differentiated brain of younger child amenable to intervention
- Neural plasticity
- Critical periods of development
- Sequential development of brain structures
- Activity-dependent neural differentiation
- Role of experience in brain development

Options for Early Detection

- How to best promote such early recognition controversial
- Variety of techniques currently in use
- Reviewing developmental milestones
- Informal collection of age-appropriate tasks
- "Clinical judgment" based on history, exam
- Detects <30% of children with disabilities
- Formal screening with parent-completed questionnaire
- Formal screening with professionally-administered standardized test (e.g., Denver II)
- Employed by only 30% of pediatricians
- Reliability, validity, logistical issues

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DEVELOPMENTAL SURVEILLANCE
Parents’ Appraisals

- Concerns
  - accurate indicators of true problems
  - speech and language
  - fine motor
  - general functioning (“he’s just slow”)
  - self-help skills, behavior less sensitive
- “Please tell me any concerns about the way your child is behaving, learning, and developing”
- “Any concerns about how she…”


<table>
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<tr>
<th>Area of Concern</th>
<th>N</th>
<th>With Unsuggested Developmental Concern</th>
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</thead>
<tbody>
<tr>
<td>Social-emotional</td>
<td>10</td>
<td>3 (30)</td>
</tr>
<tr>
<td>Social-emotional</td>
<td>21</td>
<td>7 (33)</td>
</tr>
<tr>
<td>Hyperactive</td>
<td>14</td>
<td>3 (21)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>47</td>
<td>13 (28)</td>
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DEVELOPMENTAL SURVEILLANCE
Parents’ Appraisals

- Estimations
  - “Compared with other children, how old would you say your child now acts?”
  - correlate well with developmental quotients
  - cognitive, motor, self-help, academic skills
  - less accurate for language abilities

- Predictions
  - likely to overestimate future function
  - if delayed, predict average functioning
  - if average, “presidential syndrome”

DEVELOPMENTAL SURVEILLANCE
Parents’ Descriptions

- Recall of milestones
  - notoriously unreliable
  - reflect prior conceptions of children’s development
  - accuracy improved by records, diaries
  - even if accurate, age of achievement of limited predictive value

DEVELOPMENTAL SURVEILLANCE
Parents’ Descriptions

- Report
  - accurate contemporaneous descriptions of current skills and achievements
  - importance of format of questions
  - recognition: “Does your child use any of the following words...?”
  - identification: “What words does your child say?”
  - produces higher estimates than assessment
  - child within a familiar environment
  - skills inconsistently demonstrated

DEVELOPMENTAL SCREENING
Parent-Completed Questionnaires

- Advantages
  - ease of administration
  - do not require child’s cooperation
  - broad sampling of skills
  - flexible administration methods
    - mailed prior to visit
    - complete in waiting room
    - waiting room or telephone interview by staff
  - combination

DEVELOPMENTAL SCREENING
Professionally-Administered Tools

- Strengthen observations of children’s development
  - selective administration to prevent children eluding detection
  - impracticality of routine, regular administration
  - administration at select visit(s)
  - confirmation of parental, professional concerns
  - “second-stage” screening
  - Always interpreted within context of surveillance (i.e., growth chart analogy)

DEVELOPMENTAL MONITORING
Developmental Surveillance and Screening
(AAP Policy Statement, July 2006)

- Definition of surveillance
  - Flexible, longitudinal, continuous process
  - Knowledgeable practitioners perform skilled observations during child health encounters
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DEVELOPMENTAL MONITORING
Developmental Surveillance and Screening (AAP Policy Statement, July 2006)

- Components of surveillance:
  - eliciting/attending to parents’ concerns
  - obtaining a relevant developmental history
  - making accurate observations of children
  - identifying risk and resiliency factors
  - maintaining record of process and findings
  - [sharing opinions with other professionals]
  - View child within context of overall well-being

DEVELOPMENTAL MONITORING
Developmental Surveillance and Screening (AAP Policy Statement, July 2006)

- Use of screening tools at periodic intervals to strengthen surveillance
  - Types
    - parent-completed questionnaires
    - professionally-administered “tests”
  - Frequency
    - 9, 18, 24-30 months
    - when concerns arise
    - (“second-stage”)

DEVELOPMENTAL SURVEILLANCE AND SCREENING

- Expert opinion and research evidence support developmental surveillance as “optimal” clinical practice for monitoring children’s development (Arch Pediatr Adolesc Med 2001;155:1311-1322)

DEVELOPMENTAL SURVEILLANCE AND SCREENING

- Effectiveness is enhanced by incorporating valid measures of parents’ appraisals and descriptions (i.e., parent questionnaires) and objective measures of children’s development (i.e., professionally-administered tools)
- surveillance and screening
- screening at 9-, 18-, and 24-30 months

Caveat: Detection without referral/intervention is ineffective and may be judged unethical (Perrin E. Ethical questions about screening. J Dev Behav Pediatr 1998;19:350-352)

NATIONAL DISSEMINATION


FINDINGS

- “Monthly referral rates among children with failed screens ranged from a high of 78% in September 2006 to a low of 48% in January 2007, averaging 61% over the entire study.”
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**DISCUSSION**

- "Implementation systems for referrals...have received far less attention...than implementation of screening instruments."

**SUMMARY**

- Variety of strategies merit consideration by child health providers to recognize developmental problems
  - elicit parents' opinions and concerns
  - perform relevant history
  - skillfully observe parent-child interactions

**SUMMARY (Continued)**

- Additional screening techniques worthy of implementation
  - structured parent questionnaires
  - professionally-administered tools
- Successful early detection requires useful techniques, appropriate training of child health providers, resolution of reimbursement issues

**SUMMARY (Continued)**

- Children, families at risk for developmental problems require outreach and support
  - key role of public health programs in assuring linkages
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## REFERENCES