

Developmental and Autism Screening - Updates

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- No conflicts of interest to disclose

Iowa ABCD II assessment

- Low rates of formal screening for development, social emotional problems, and family psychosocial issues.
- Difficulty connecting families to resources
- Lack of preventative services for at risk children and families
- Iowa Assuring Better Child Health and Development II project -2006

Goals

- Review specific tools for use by health care providers for developmental screening, autism screening, mental health screening, and family psychosocial screening

Developmental Screening

- Parent completed developmental questionnaires
- Autism screening
- Mental health screening
- Family psychosocial screening, including parental depression
- **REFER EARLY** for services; don't defer



Why screen ?

- 12-16% of children have a developmental or behavioral disorder
- Clinical judgment may only detect 30%
- Physician may be the only professional in contact with young child and family
- Increases identification

Why screen?

- Screening increases referral to services.
- Percentage of children in Early Intervention – 2.7% national average, 3% in Iowa (up from 2% in 2005)
- 6.4% Hawaii, 6.7% Massachusetts –states that mandate screening
- CDD estimate 7-8% delayed under 3 yr

Benefits of early intervention

- Children with delays or environmental risk benefit from early childhood programs
- Less grade retention, less need for special education services, lower dropout rate, improved health, improved income
- Early Childhood programs save money – \$30,000-100,000 per child

Developmental Screening overview

- **AAP recommends surveillance at every well child visit**
- **AAP recommends formal screening at 9, 18, and 30 months and whenever there is a concern**
- Serial surveillance and screening is the most effective

Developmental Screening

- Speech delay is the most common delay and presents between 18 mo to 3 years – Speech/language disorder, mild MR, transient speech delay, autism, hearing impairment, environment

Developmental Screening

- Screening is not diagnostic or predictive
- Screening aims to identify those children who need further evaluation
- If child is delayed in one area, check development in all areas
- Screen development in children with behavior problems

Developmental Screening – parent completed questionnaires

- Involves the parents
- Stimulus for questions
- Educates parents about normal development
- **Time efficient** for healthcare provider
- **Sensitivity and specificity are as good as most administered screening tools**

Developmental Screening

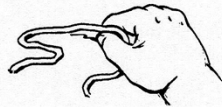
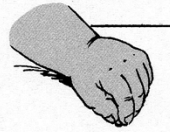
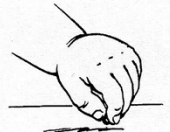

- Sensitivity - % of children with delays identified with the screener
- Specificity - % of typical children identified as typical or low risk
- 70-80% sensitivity and specificity is considered acceptable
- Positive Predictive Value – true positives / true and false positives

Developmental Questionnaires

- **Ages and Stages Questionnaires-3**, 2-60 months, (Bricker and Squires) 2009 (endorsed by IDPH, CHSC, DHS)
- Parents' Evaluation of Developmental Status (PEDS) – 0-8 years, parental concerns, (Glascoe)- (prescreener)
- Parents' Evaluation of Developmental Status: Developmental Milestones (PEDS-DM) – 0-8 years, (Glascoe)
- Child Development Inventories, 3-72 months, (Ireton)- (Infant scale is very good)

Ages and Stages-3, 2009

- 2-60 months
- Sensitivity 86%
- Specificity 85%
- 25-35 items
- 10-20 min. for parent, 2-3 min. to score
- 21 forms, specific for child's age

		YES	SOMETIMES	NOT	
FINE MOTOR <i>Be sure to try each activity with your child.</i>					
1.	After one or two tries, does your baby pick up a piece of string with her first finger and thumb? (The string may be attached to a toy.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Does your baby pick up a crumb or Cheerio with the <i>tips</i> of his thumb and a finger? He may rest his arm or hand on the table while doing it.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Does your baby put a small toy down, without dropping it, and then take her hand off the toy?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Without resting his arm or hand on the table, does your baby pick up a crumb or Cheerio with the tip of his thumb and a finger?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Does your baby throw a small ball with a forward arm motion? (If he simply drops the ball, check "not yet" for this item.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Does your baby help turn the pages of a book? (You may lift a page for her to grasp.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Ages and Stages-3

- Communication, FM, GM, problem-solving, personal-social
- Identifies strengths and weaknesses
- Forms can be copied
- On-line options

GROSS MOTOR *Be sure to try each activity with your child.*

1. While holding onto furniture, does your baby bend down and pick up a toy from the floor and then return to a standing position?



2. While holding onto furniture, does your baby lower herself with control (without falling or flopping down)?

3. Does your baby walk along furniture while holding on with only one hand?

4. If you hold both hands just to balance him, does your baby take several steps without tripping or falling? (If your baby already walks alone, check "yes" for this item.)



5. When you hold *one hand* just to balance her, does your baby take several steps forward? (If your baby already walks alone, check "yes" for this item.)



6. Does your baby stand up in the middle of the floor by himself and take several steps forward?

GROSS MOTOR TC

Ages and Stages-3

- Separate scores for Communication, GM, FM, Problem-solving, Personal-Social
- Yes=10, Sometimes=5, Not yet=0
- Total scores recorded on chart
- Above the cutoff –on schedule ($>-1SD$)
- Close to the cutoff – monitor (-2 to $-1SD$)
- Below the cutoff – needs assessment (below $-2 SD$)

PEDS

- 10 Questions, also in Spanish and online
- 5th grade reading level
- Elicits parent concern about development and behavior
- Same form for all ages, brief
- Sensitivity 74-79%, Specificity 70-80%



PEDS RESPONSE FORM

Child's Name: _____ Parent's Name: _____
 Child's Gender: _____ Child's Age: _____ Height: _____

1. Please list any concerns about your child's learning, development, and behavior.

2. Do you have any concerns about how your child talks and makes speech sounds?
 Circle one: No Yes A little Omit/Don't Know

3. Do you have any concerns about how your child understands what you say?
 Circle one: No Yes A little Omit/Don't Know

4. Do you have any concerns about how your child sees his or her hands and fingers in the shape?
 Circle one: No Yes A little Omit/Don't Know

5. Do you have any concerns about how your child uses his or her arms and legs?
 Circle one: No Yes A little Omit/Don't Know

6. Do you have any concerns about how your child behaves?
 Circle one: No Yes A little Omit/Don't Know

7. Do you have any concerns about how your child gets along with others?
 Circle one: No Yes A little Omit/Don't Know

8. Do you have any concerns about how your child is learning to do things his himself/herself?
 Circle one: No Yes A little Omit/Don't Know

9. Do you have any concerns about how your child's learning progresses at school/gather?
 Circle one: No Yes A little Omit/Don't Know

10. Please list any other concerns.

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PEDS

- Glascoe recommends evaluation if 2 or more significant concerns (11%)
- Screen if 1 concern (26%)
- Need second level screener

PEDS SCORE FORM

Child Name _____ Birthdate _____

Please circle the number of concerns for the PEDS questions listed opposite the child's age and months on the PEDS instrument. Please do not circle any corresponding answers. Circle 0 for no concerns, 1 for 1 concern, 2 for 2 concerns, 3 for 3 concerns, 4 for 4 concerns, 5 for 5 concerns, 6 for 6 concerns, 7 for 7 concerns, 8 for 8 concerns, 9 for 9 concerns, 10 for 10 concerns.

Question	18-24 mos	25-30 mos	31-36 mos	37-42 mos	43-48 mos	49-54 mos	55-60 mos	61-66 mos	67-72 mos	73-78 mos	79-84 mos	85-90 mos	91-96 mos	97-102 mos
1. Global Cognitive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Receptive Language and Attention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Receptive Language	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fine Motor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Gross Motor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Behavior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Social Interaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Self-help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Circle the number of circles in the row of circles above and place the number in the large number box below.

If the number of circles in the large number box is 2-4, circle 2-4 on the PEDS instrument. If the number of circles in the large number box is 5-10, circle 5-10 on the PEDS instrument. If the number of circles in the large number box is 11-15, circle 11-15 on the PEDS instrument. If the number of circles in the large number box is 16-20, circle 16-20 on the PEDS instrument. If the number of circles in the large number box is 21-25, circle 21-25 on the PEDS instrument. If the number of circles in the large number box is 26-30, circle 26-30 on the PEDS instrument. If the number of circles in the large number box is 31-35, circle 31-35 on the PEDS instrument. If the number of circles in the large number box is 36-40, circle 36-40 on the PEDS instrument. If the number of circles in the large number box is 41-45, circle 41-45 on the PEDS instrument. If the number of circles in the large number box is 46-50, circle 46-50 on the PEDS instrument. If the number of circles in the large number box is 51-55, circle 51-55 on the PEDS instrument. If the number of circles in the large number box is 56-60, circle 56-60 on the PEDS instrument. If the number of circles in the large number box is 61-65, circle 61-65 on the PEDS instrument. If the number of circles in the large number box is 66-70, circle 66-70 on the PEDS instrument. If the number of circles in the large number box is 71-75, circle 71-75 on the PEDS instrument. If the number of circles in the large number box is 76-80, circle 76-80 on the PEDS instrument. If the number of circles in the large number box is 81-85, circle 81-85 on the PEDS instrument. If the number of circles in the large number box is 86-90, circle 86-90 on the PEDS instrument. If the number of circles in the large number box is 91-95, circle 91-95 on the PEDS instrument. If the number of circles in the large number box is 96-100, circle 96-100 on the PEDS instrument.

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Administered Developmental Screening Tools

- Bayley Infant Neurodevelopmental Screener (BINS) – 3-24 mo, s&s 75-86%, 10-15 min, \$199+, neuromotor items included
- Capute Scales (CAT/CLAMS)-0-3 yr, cognitive/language, 15-20min, \$320+
- Brigance Screens 0-60 mo, sens & spec 70-82%, 10-15 min., \$299+(0-35mo), \$ 299+(3-5yr)
- Denver II, 0-60 mo, sens 73-83%, spec 43-62%, 10-20 min., \$128+

Developmental Screening

- Parent completed questionnaires make sense
- Some experts are recommending screening at 3, 4 and 5 years
- Remember to Refer – 50-80% of children with at risk screens are not referred
- If child doesn't qualify for Early Intervention, consider Headstart, speech

Autism Screening

- 1/110 children have autistic spectrum disorder
- Why screen? Better outcome with early intervention
- First step- routine developmental surveillance/screening
- **AAP recommends use of autism specific questionnaire at 18 and 24 mo**
- Vigilance in siblings

DSM-IV Criteria for Autism

- **Impaired social relatedness**
 - Impaired eye contact and gestures
 - Difficulty with peer relationships
 - Lack of sharing interests and enjoyment
 - Lack of usual social-emotional reciprocity
- **Delayed and impaired communication**
 - Absent or delayed language
 - Difficulty with conversations
 - Unusual use of language – echoing
 - Lack of social imitative play

Criteria for Autism

- **Stereotypic behavior**
 - Restricted intense interests
 - Non-functional routines or rituals
 - Stereotypic/repetitive motor mannerisms
 - Preoccupation with parts of objects
- Onset before 3 years



DSM-5 Criteria for ASD

- **Deficits in social communication and social interactions**
 - Social emotional reciprocity
 - Nonverbal communication
 - Relationships
- **Restricted, repetitive patterns of behavior, interests, or activities**
- Present in early childhood
- Limit and impair functioning

Joint Attention

- More specific to autism than speech delay
- Coordinate attention between an object and a person in a social context – responding to point or initiating point
- 8 mo Gaze monitoring
- 10 mo Follow a point
- 12 mo Point to request
- 14 mo Point to show

Autism Specific Questionnaires

- **M-CHAT Modified Checklist for Autism in Toddlers**
18-30 months -Parent questionnaire, Sens 85-87%,
Spec 93% - new scoring
- Pervasive Dev Disorders Screening Test PDDST-II –
Stage I 12-24 months, Sensitivity and specificity are
moderate to high
- CSBS Infant and Toddler Checklist- 6-24 mo, available
in AAP Autism toolkit. Sens 76-88%, spec 82-87%, also
identifies children with dd and speech disorders
- Social Communication Questionnaire - 4 years+, Sens
85%, Spec 75%

M-CHAT: *Best 7 Scoring*

- Failure of 2 / 7 critical questions or
- Failure of any 3 / 23 questions
- Not all children, who score at risk will have ASD
- False positives often have speech/language disorder or ID
- Critical questions 2,5,7,9,14,15,20

Modified Checklist for Autism in Toddlers

1. Does your child enjoy being swung, bounced on your knee, etc.?
2. **Does your child take an interest in other children?**
3. Does your child like climbing on things, such as up stairs?
4. Does your child enjoy playing peek-a-boo/hide-and-seek?
5. **Does your child ever pretend, for example, to talk on the phone or take care of dolls, or pretend other things?**
6. Does your child ever use his / her index finger to point, to ask for something?
7. **Does your child ever use his / her index finger to point, to indicate interest?**
8. Can your child play properly with small toys (e.g. cars or bricks) without just mouthing, fiddling, or dropping them?
9. **Does your child ever bring objects over to you (parent) to show something?**
10. Does your child look you in the eye for more than a second or two?

11. Does your child ever seem oversensitive to noise? (e.g., plugging ears)
12. Does your child smile in response to your face or your smile?
13. Does your child imitate? (e.g., you make a face-will your child imitate it?)
- 14. Does your child respond to his/her name when you call?**
- 15. If you point at a toy across the room, does your child look at it?**
16. Does your child walk?
17. Does your child look at things you are looking at?
18. Does your child make unusual finger movements near his/her face?
19. Does your child try to attract your attention to his/her own activity?
- 20. Have you ever wondered if your child is deaf?**
21. Does your child understand what people say?
22. Does your child sometimes stare at nothing or wander with no purpose?
23. Does your child look at your face to check your reaction when faced with something unfamiliar?

Mental Health Screening

- **“ How young children feel is as important as how they think...”**

Jack Shonkoff, MD in *Neurons to Neighborhood-the Science of Early Child Development*, 2000.

AAP Task Force on Mental Health 2009 proposal

- Use of validated social-emotional screening for children 0-5 yr if
 - Abnormal development screen, poor growth,
 - Poor attachment,
 - Excessive crying, clinging, fearfulness
 - Regression
 - Family psychosocial concerns
- Presumes available services - PCIT

Older child and teen

- 20% of children and teens have mental health diagnosis
- AAP - Use of validated screen for mental illness at all well visits -5 years and up &
- Times of family disruption, poor school performance, behavioral problems, recurrent somatic complaints, involvement of DHS or juvenile justice, and reported family psychosocial concerns
- *Pediatrics*. June 2011 Supplement

Behavioral and Emotional Screening – young child

- **Ages and Stages, SE** – 6-60 months, 19-33 items, self-regulation, compliance, communication, adaptive function, autonomy, affect, and interaction with people. sens. 71-85%, spec. 90-98%, \$195- forms may be copied
- **Brief Infant Toddler Social Emotional Assessment Scale BITSEA**. 1-3yr, 42 items, 15 min, sens. 80-85%, spec. 75-80%, \$105+

Behavioral/Emotional Screening – older child – initial screening

- Pediatric Symptom Checklist (Jellinek) – 6-16 yrs, 35 items, <5 min., Sens 80-95%, Spec. 68%-100%, internalizing, externalizing, and attention problems.
www.dbped.org, free, can be used as young as 4 yrs

- “Our clinical opinion suggests that the best way to help young children is to help their parents
- and the best way to reach parents is through their children.”

Barry Zuckerman and Steven Parker

Family Psychosocial screening

- Kemper -Bright Future intake form
- Screens parental risk factors, including parental history of abuse as child, substance abuse, depression
- Sensitivity and specificity- very good
http://www.brightfutures.org/mentalhealth/pdf/professionals/ped_intake_form.pdf

Iowa Child Health Development Record -CHDR

- **Family Risk Factors :**
Any changes in family since last visit:
- **Stress:** How much stress are you and your family under now?
None, Slight, Moderate, Severe
- **What kind of stress?** Relationships, Drugs, Alcohol, Violence/Abuse, Lack of help, Financial, child care, other

Iowa CHDR

- **How stressful is caring for your child?**
None, Slight, Moderate, Severe
- **Maternal/Caregiver Depression:**
- In the past month, have you/partner felt down, depressed or hopeless? No, Sometimes, Often
- In the past month have you/partner felt little interest or pleasure in doing things? No, Sometimes, Often

Barriers to developmental screening

- Time -80%
- Lack of reimbursement -56%
- Lack of office staff-51%
- Unfamiliar with codes-46%
- Lack of diagnostic/treatment services-34%
- Lack of training-28%
- Unfamiliar with tools-24%

(AAP Periodic Survey of Fellows, No 45,2000)

Instituting Developmental Screening

- Physician champion/s
- Select a screening tool
- Look at office workflow
- Identify local resources for children who screen positive
- Staff orientation and training
- CQI project

On-line Screeners

- PEDS
- ASQ-3
- CHADIS- Child Health & Development Interactive System– over 50 tools, including ASQ-3, M-CHAT and follow-up, Vanderbilt, others, by Barbara Howard, MD and Raymond Sturner, MD
www.chadis.com

Billing for Screening

- 96110 Developmental Testing; Limited, eg. ASQ-3, ASQ-SE, M-CHAT, Vanderbilt, etc.
- 96111 Dev testing; administered
- Can be billed in addition to E/M code
- Modifier -25
- AAP website

Summary

- Parent completed questionnaires
- Autism screening
- Mental health screening
- Family psychosocial screening.
- Know community services
- **REFER EARLY** for services; don't **defer**



Education -Early Intervention

Birth to Three

In home services in
Iowa, teacher, OT,
PT, ST, SW

1-888-IAKIDS1

www.earlyaccessiowa.org
–good list of
resources in IA



Iowa Resources

- www.iowaepsdt.org EPSDT guidelines
- Iowa's 1st Five Initiative – IDPH
- Healthy Families Line 800-369-2229
- www.communitycircleofcare.org
- lowacompass.org – disability services
- www.familytofamilyiowa.org Parent navigators advise families with special needs

Resources

- www.dbpeds.org Dev Behav Peds website, articles and handouts
- www.pedstest.com PEDS, links
- www.firstsigns.org Development and autism screening
- www.brookespublishing.com Ages&Stages

Resources

- www.brightfutures.aap.org Guidelines for Health Supervision Third Edition 2007
- AAP Medical Home website
- Developmental-Behavioral Pediatrics (DBP): www.phoenixchildrens.com/dbpeds
- Developmental Screening Toolbox Boston Children's Hospital
www.developmentalscreening.org
- AAP Mental Health toolkit

ASD Resources

- www.firstsigns.org videos, M-CHAT
- www.autismspeaks.org videos
- www.cdc.gov/actearly
- M-CHAT Information
www2.gsu.edu/~psydlr/
- AAP Autism Toolkit, including handouts for families
- AAP *Understanding Autism Spectrum Disorders* brochure for families

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