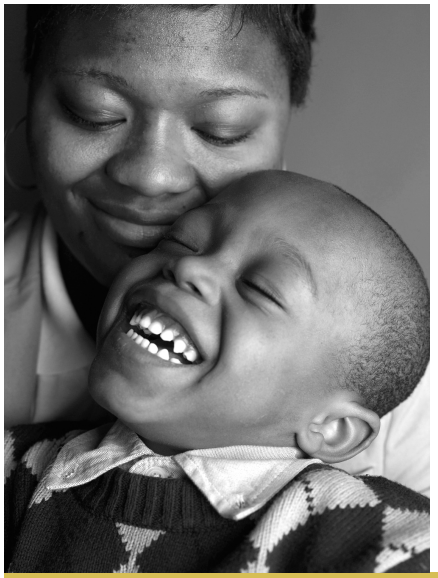
Developmental Surveillance and Screening and the AAP: Where We Were, Where We Are, and Where We Are Going



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Learning Objectives

- Understand developmental screening and surveillance trends in US pediatric practice
- Summarize the changes and recommended steps in this practice for effective identification of children with developmental problems
- Explain the system of pediatric care from surveillance and screening, to diagnosis, and referral
- Identify components of developmental surveillance, including communication with early childhood and medical professionals outside of the medical home
- Review AAP partner initiatives and resources available to assist with implementation of developmental screening, referral, and follow-up in the medical home

"Pediatricians' Reported Practices Regarding Developmental Screening: Do Guidelines Work? Do They Help?"

TABLE 2. Methods Reported by Pediatricians to Identify Children at Risk for Developmental Problems

Method/Instrument	*n*	Proportion Who Reported Using Method or Instrument Always or Almost Always, %
Clinical assessment (ie, history and physical examination without screening instrument or checklist)	569	71
Clinical assessment guided by standardized instrument	562	33
Informal checklist completed by physician or office staff members	548	37
Informal checklist completed by parents	539	15
Standardized screening instrument	565	23
Bayley neurodevelopmental screen	509	2
Denver II	549	14
Ages and Stages	509	7
Parents' Evaluation of Developmental Status	504	3
Other	41	49

The *n* values for the survey items vary because of missing data. The use of the listed screening techniques is not mutually exclusive; therefore, proportions do not add up to 100%.

Periodic Survey of AAP Fellows #53 (2002); N Sand, et al., *Pediatrics* 2005

TABLE 5. Reported Barriers to Conducting Standardized Developmental Screening for Children 0 to 3 Years of Age

	Proportion of Pediatricians Reporting Factor as Barrier to Screening, %
Time limitations in current practice	83
Lack of medical office staff to perform screening	49
Inadequate reimbursement for conducting formal screening	46
Language barriers (ie, physician or staff members cannot speak language of family)	19
Lack of confidence in ability to screen	10
Lack of treatment options for positive screening results	9
Lack of knowledge regarding referral options for positive screening results	8
Lack of confidence in validity of screening instruments	8
Belief that formal screening is not an appropriate role for pediatricians	8

Periodic Survey of AAP Fellows #53 (2002); N Sand, et al., *Pediatrics* 2005

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

Pediatrics 2006; 118: 405-420

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Definitions (AAP 2006)

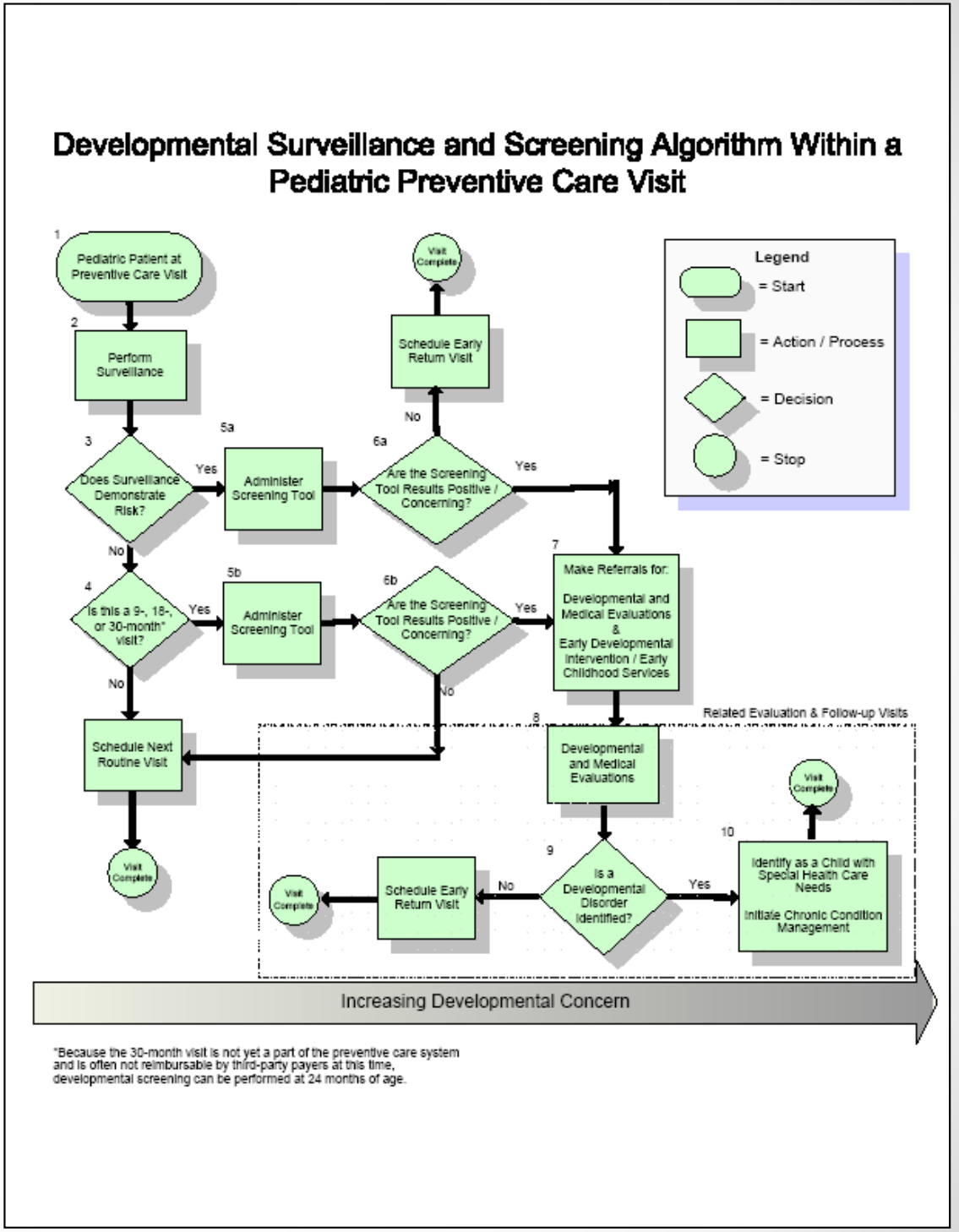
- **Developmental surveillance**
  - "A flexible, longitudinal, continuous, and cumulative process whereby ... identify children who may have developmental problems"
- **Developmental screening**
  - "The administration of a brief standardized tool aiding the identification of children at risk of a developmental disorder"
  - Periodic
  - Not Diagnostic!
- **Developmental evaluation**
  - "Aimed at identifying the specific developmental disorder or disorders affecting the child "

AAP 2006 Developmental Screening Recommendations

- ***Developmental surveillance***
  - Every well-child visit
- ***Developmental screening*** using a standardized screening tool
  - 9, 18, and 30 months
  - When concern is expressed
- ***Autism screening***
  - 18 and 24 months

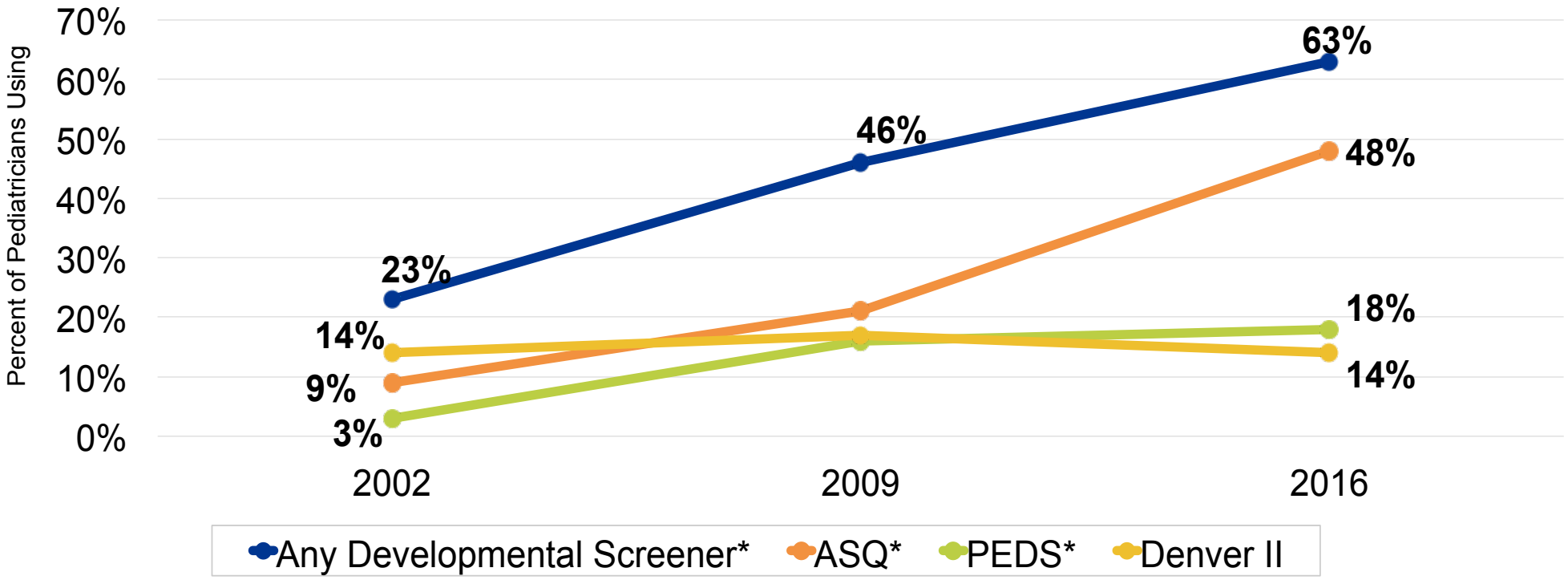
Algorithm:

Surveillance to Screening to Referral



Trends in Standardized Developmental Screening: Results from National Surveys of Pediatricians, 2002-2016

Fig. 1: Rates of Developmental Screening Tool Use among Pediatricians, 2002-2016



PERIODIC SURVEY OF FELLOWS

Data from Lipkin PH, Macias MM, Baer-Chen B, et al. Trends in pediatricians' developmental screening: 2002-2016. *Pediatrics*. 2020;145(4):e20190851.

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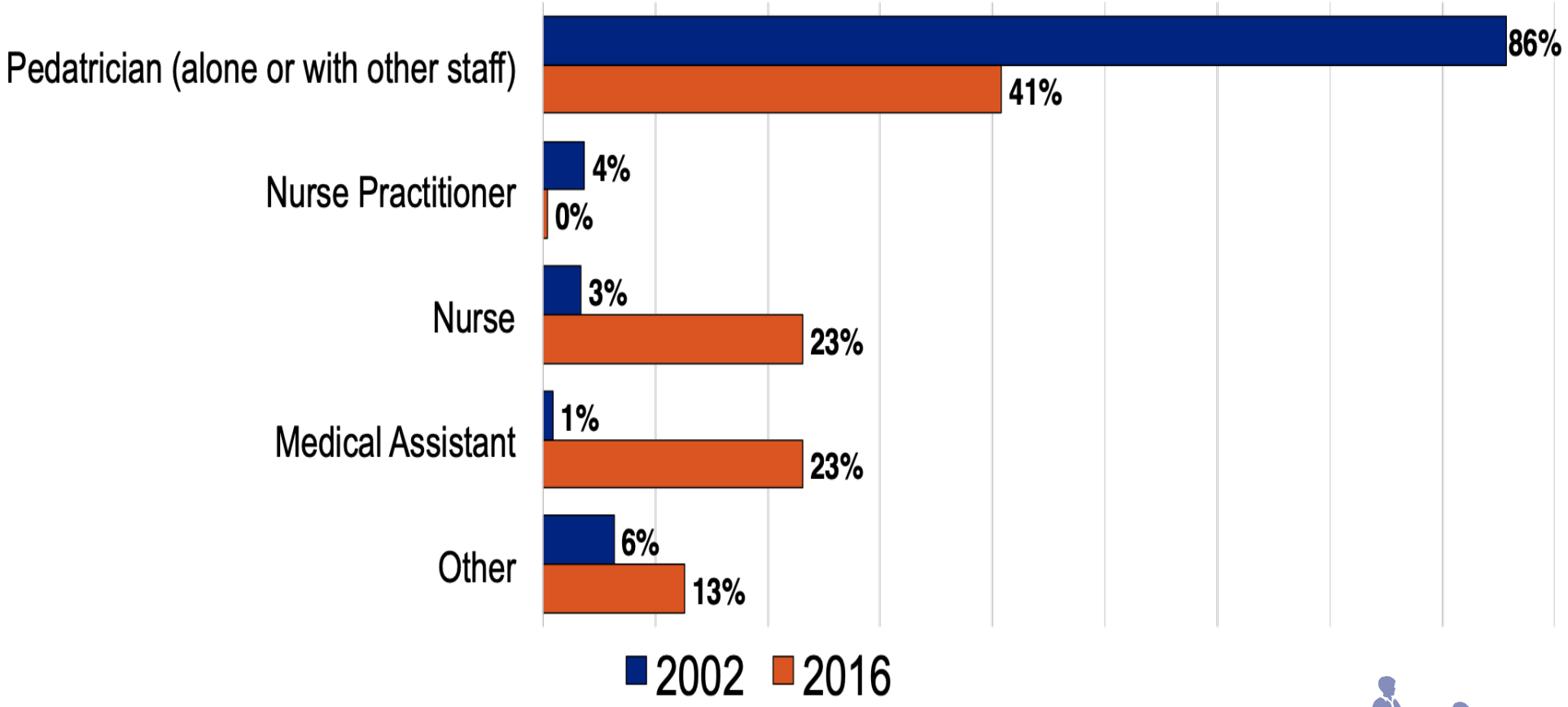
Trends: Screening Test Administration

Fig. 2: Who Administers Formal Screening in Pediatricians' Practices? Changes from 2002-2016*



Data from Lipkin PH, Macias MM, Baer-Chen B, et al. Trends in pediatricians' developmental screening: 2002-2016. *Pediatrics*. 2020;145(4):e20190851.

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Trends: Screening and Referral

Screening Barriers

- Time limitations
- Inadequate reimbursement
- Lack of office staff to perform screenings

Referrals

- Increase from 41% in 2002 to 59% of at-risk patients to Early Intervention (EI)

Data from Lipkin PH, Macias MM, Baer-Chen B, et al. Trends in pediatricians' developmental screening: 2002-2016. *Pediatrics*. 2020;145(4):e20190851.

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FROM THE AMERICAN ACADEMY OF PEDIATRICS

CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

American Academy of Pediatrics

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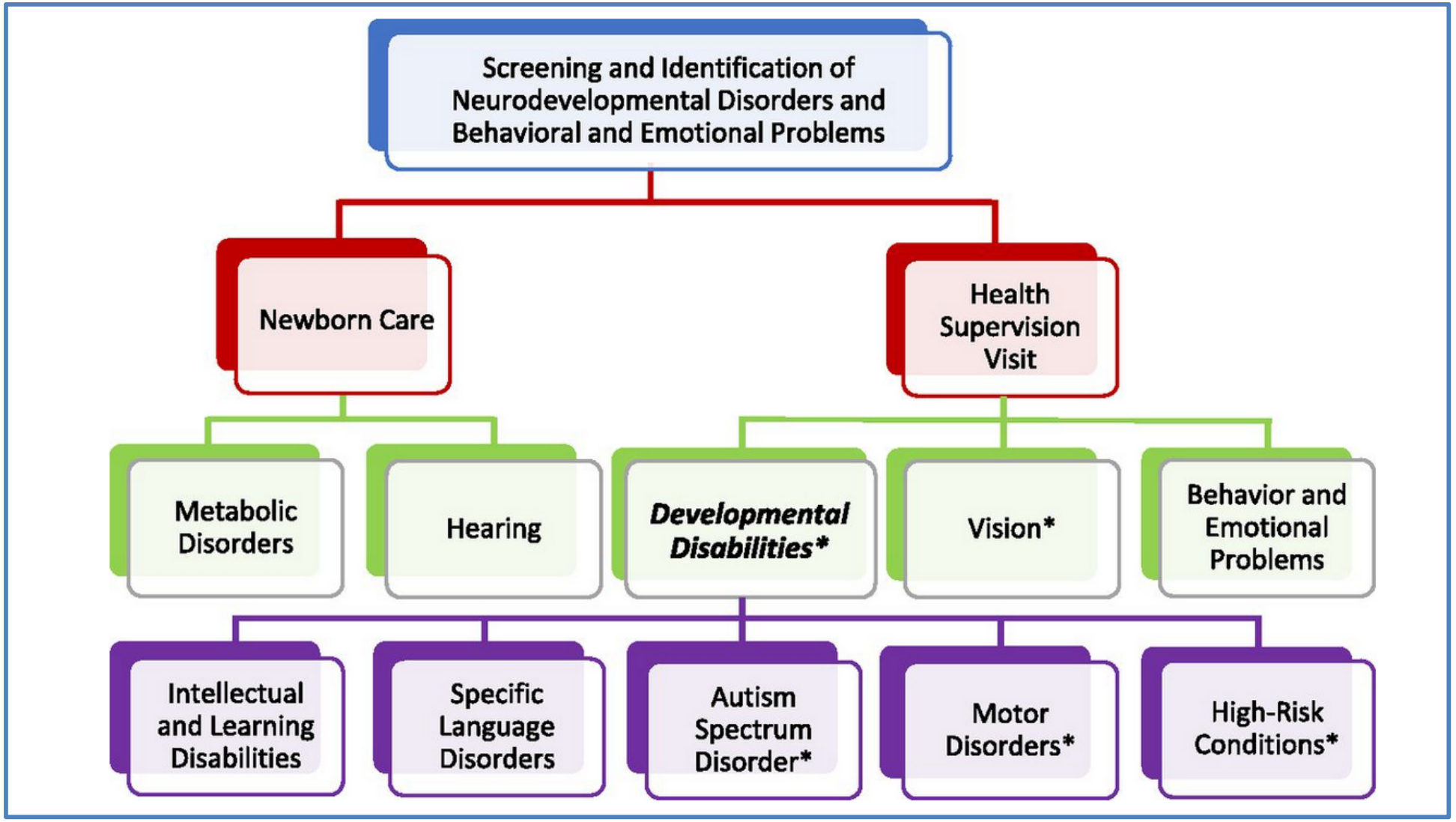
Promoting Optimal Development: Identifying Infants and Young Children With Developmental Disorders Through Developmental Surveillance and Screening

Paul H. Lipkin, MD, FAAP,[a] Michelle M. Macias, MD, FAAP,[b] COUNCIL ON CHILDREN WITH DISABILITIES, SECTION ON DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS

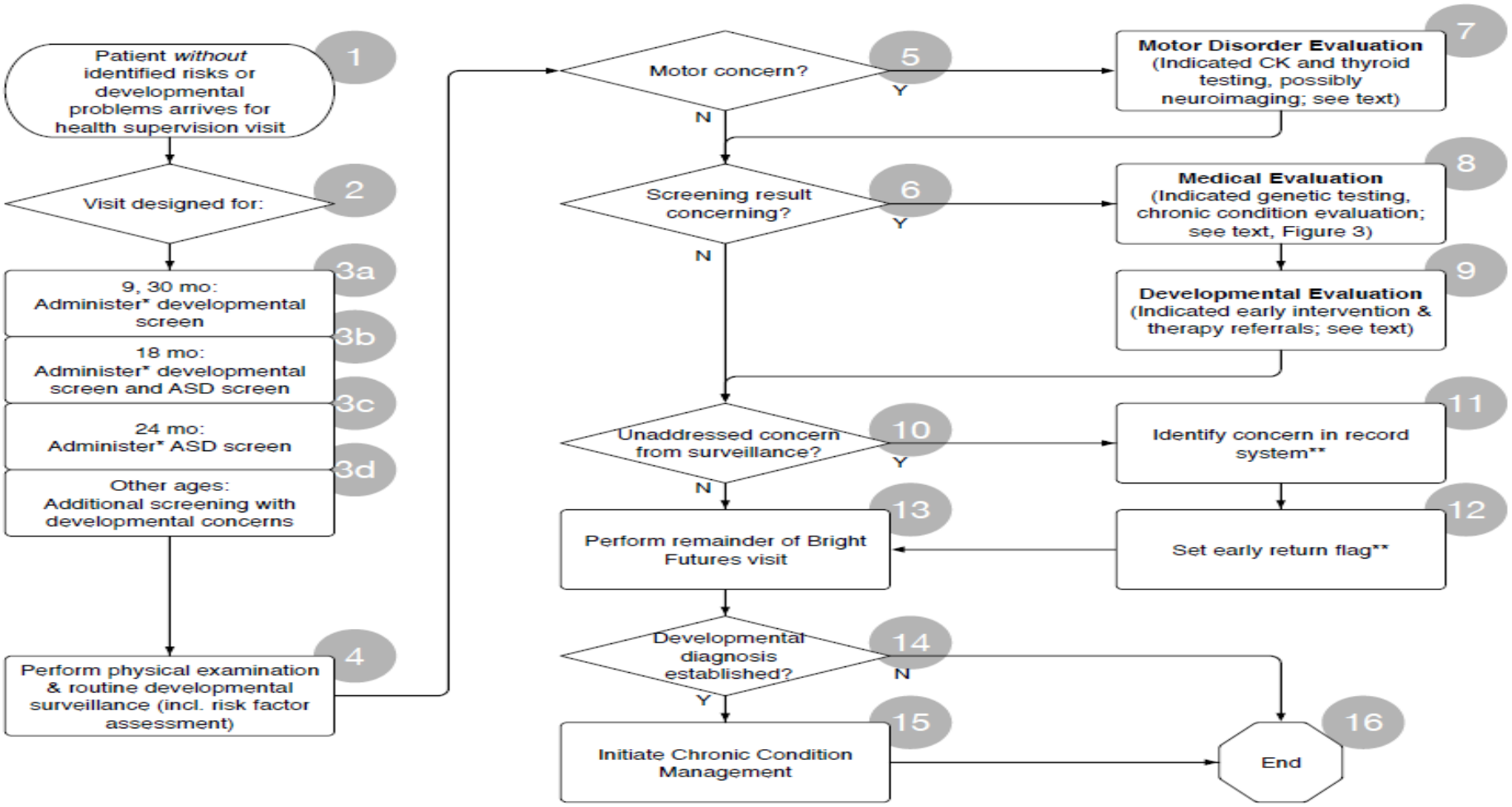
Lipkin PH, Macias MM, AAP Council on Children With Disabilities, and Section on Developmental and Behavioral Pediatrics. Promoting optimal development: identifying infants and young children with developmental disorders through developmental surveillance and screening. *Pediatrics*. 2020;145(1):e20193449.

Screening and Identification of Developmental Disabilities and Behavioral and Emotional Problems



Lipkin PH, Macias MM, AAP Council on Children With Disabilities, and Section on Developmental and Behavioral Pediatrics. Promoting optimal development: identifying infants and young children with developmental disorders through developmental surveillance and screening. *Pediatrics*. 2020;145(1):e20193449.

Algorithm for Screening a Patient Without Identified Risks for Developmental Problems at a Health Supervision Visit

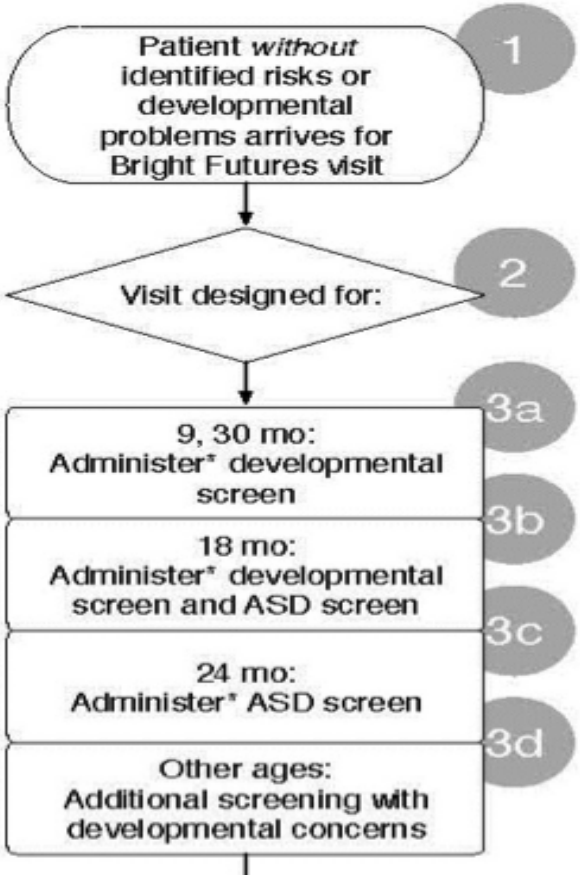


*Screening instruments may be administered through a pre-visit process initiated by the practice or by the family.
**Providers should create methods in their record system (paper or electronic) to ensure that these facts are visible to clinicians in future visits and in the appointment scheduling process.

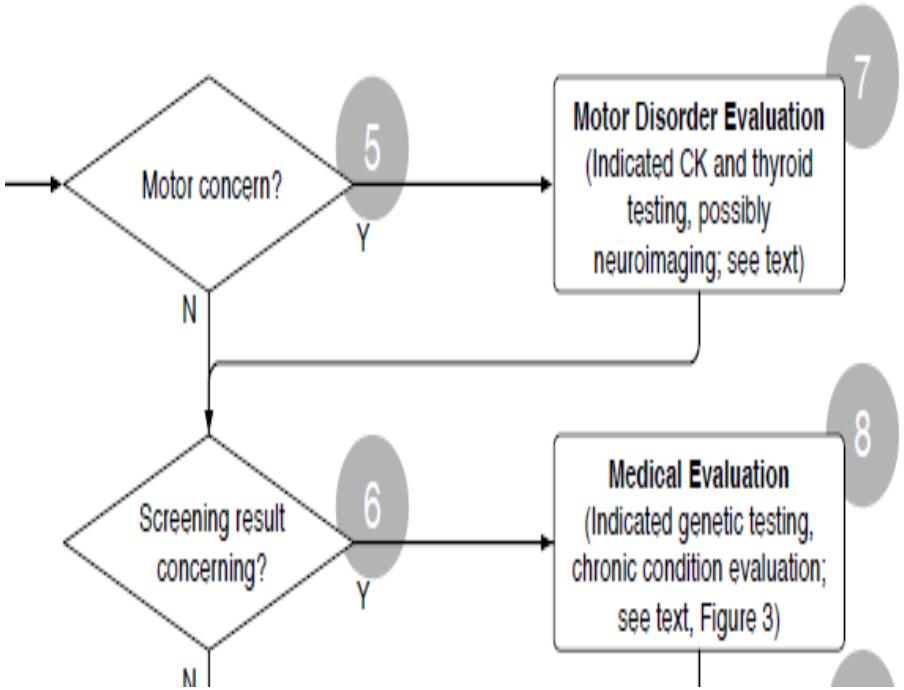
Lipkin PH, Macias MM, AAP Council on Children With Disabilities, and Section on Developmental and Behavioral Pediatrics. Promoting optimal development: identifying infants and young children with developmental disorders through developmental surveillance and screening. *Pediatrics*. 2020;145(1):e20193449.

Uniting Developmental Screening

General and Autism Paths



Motor Path



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Surveillance and Screening: Modifications

- Screening
  - Integration of general developmental screening with autism screening, motor screening, other
  - Ages of screening unchanged (9, 18, 24 [ASD], 30 months)
- Surveillance: refined definition
  - Screening by childcare and early childhood professionals: Incorporation by the pediatrician into surveillance at every health supervision visit
    - Review with family
    - Associated actions?
    - Discussion with screening professional
    - Repeat screening?
- Heightened attention to surveillance at the 4- to 5-year visit

Implementation: **Surveillance** 2020

Parent-Clinician Discussion at Every Health Supervision Visit

1. Eliciting and attending to the parents' concerns about their child's development;
2. Obtaining, documenting, and maintaining a developmental history;
3. Making accurate and informed observations of the child;
4. Identifying risk and strengths and protective factors;
5. Maintaining an accurate record of documenting the process and findings;
6. *Sharing and obtaining opinions and findings with other professionals (childcare providers, home visitors, preschool teachers, and developmental therapists), especially when concerns arise*

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Implementation: **Surveillance** 2020

- Developmental surveillance at every health supervision visit
  - Includes sharing and obtaining opinions and findings
- Establish relationships with local childcare professionals, therapists, and educators for ongoing developmental surveillance and discussion of screening results.
- Consider *direct referral* to EI/early childhood education, for developmental and medical evaluations *without screening*, when the child is determined to be at increased risk.

Implementation: **Screening** 2020

- Standardized screening test for all children at 9, 18, and 30 months, and for those whose surveillance yields concerns about delayed or disordered development.
  - Heightened attention through surveillance at the 4- and 5-year visits
- Standardized ASD screening test at the 18- and 24-month visits and at any time for those whose surveillance yields concerns about delayed or disordered social development.

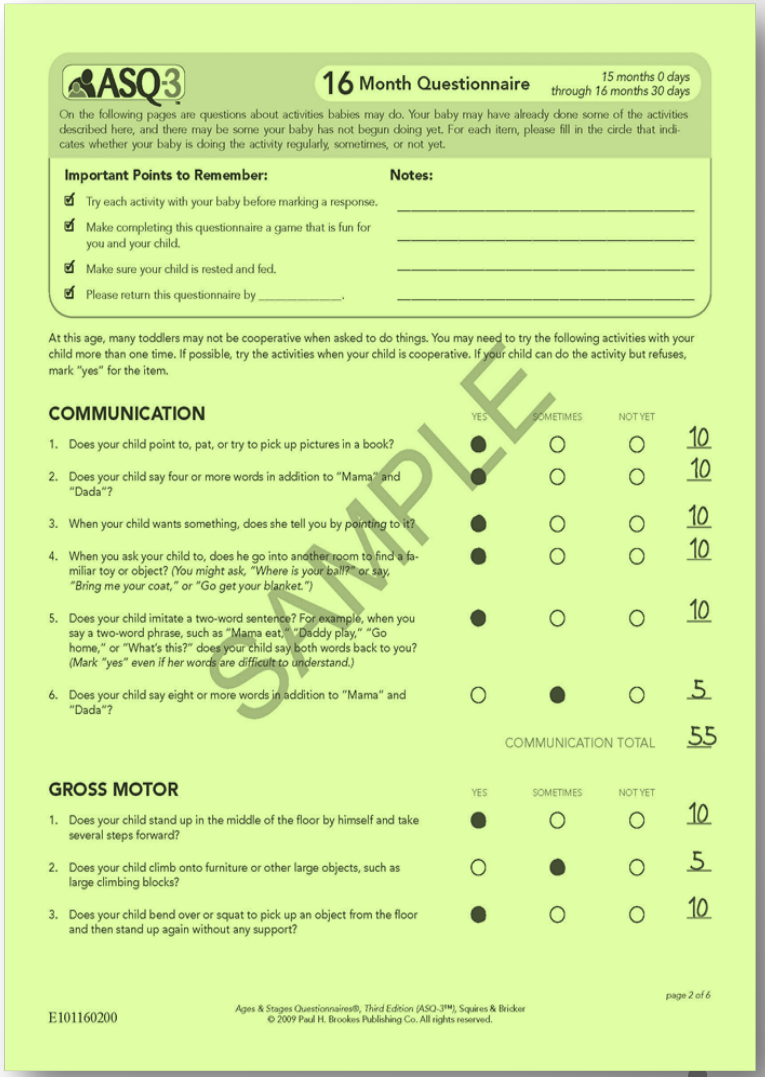
Supplemental Table 1 Developmental Screening Tests

	Description	Age Range	No. Items	Administration Time	Forms Available EHR Compatible
Ages and Stages Questionnaires — 3	Parent-completed questionnaire. Series of 21 questions screening communication, gross motor, fine motor, problem-solving, and personal adaptive skills. Results in pass, monitor, or fail score for domains	2–60 mo	30	10–15 min	Electronic format that can be adapted for an EH
PEDS	Parent interview form. Designed to screen for developmental and behavioral problems needing further evaluation. Single response form used for all ages. May be useful as a surveillance tool	0–8 y	10	2–5 min	Electronic format that can be adapted for an EHR
PEDS: Developmental Milestones Screening Version	Parent interview form. Designed to screen for developmental and social-emotional problems	0–8 y	6–8 items at each age level	4–6 min	Electronic format that can be adapted for an EHR
SWYC: milestones	12 age-specific forms, keyed to pediatric periodicity schedule. Includes cognitive, language, and motor skills	1–65 mo	10	~5 min	Available through Patient Tools, Epic, and CHADIS Available for free download as PDFs from www.theswyc.org

Lipkin PH, Macias MM, AAP Council on Children With Disabilities, and Council on Developmental and Behavioral Pediatrics. Promoting optimal development: identifying infants and young children with developmental disorders through developmental surveillance and screening. *Pediatrics*. 2020;145(1):e20193449.

Ages and Stages Questionnaire (ASQ)- 3rd edition: 1 months to 5½ years

- Caregiver questionnaires: Ages 2 to 60 mos., including *9*, *18*, *24*, and *30*
- 30 items per form describing skills
- Domains: Communication, Gross Motor, Fine Motor, Problem Solving, Personal-Social
- Time: Parent completion 10-15 mins, Scoring 2-3 mins.
- Scoring: 'On schedule'; *Monitor*; *Further Assessment*
- Languages: English, Spanish
- Can be photocopied
- ASQ-Social-Emotional works similarly and measures behavior, temperament, etc.
- http://www.brookespublishing.com/tools/asq/index.htm



ASQ-3

16 Month Questionnaire — *15 months 0 days through 16 months 30 days*

On the following pages are questions about activities babies may do. Your baby may have already done some of the activities described here, and there may be some your baby has not begun doing yet. For each item, please fill in the circle that indicates whether your baby is doing the activity regularly, sometimes, or not yet.

Important Points to Remember:

- ☑ Try each activity with your baby before marking a response.
- ☑ Make completing this questionnaire a game that is fun for you and your child.
- ☑ Make sure your child is rested and fed.
- ☑ Please return this questionnaire by _____.

Notes: _____

At this age, many toddlers may not be cooperative when asked to do things. You may need to try the following activities with your child more than one time. If possible, try the activities when your child is cooperative. If your child can do the activity but refuses, mark "yes" for the item.

SAMPLE

COMMUNICATION

	YES	SOMETIMES	NOT YET	
1. Does your child point to, pat, or try to pick up pictures in a book?	●	○	○	10
2. Does your child say four or more words in addition to "Mama" and "Dada"?	●	○	○	10
3. When your child wants something, does she tell you by pointing to it?	●	○	○	10
4. When you ask your child to, does he go into another room to find a familiar toy or object? *(You might ask, "Where is your ball?" or say, "Bring me your coat," or "Go get your blanket.")*	●	○	○	10
5. Does your child imitate a two-word sentence? For example, when you say a two-word phrase, such as "Mama eat," "Daddy play," "Go home," or "What's this?" does your child say both words back to you? *(Mark "yes" even if her words are difficult to understand.)*	●	○	○	10
6. Does your child say eight or more words in addition to "Mama" and "Dada"?	○	●	○	5
			COMMUNICATION TOTAL	55

GROSS MOTOR

	YES	SOMETIMES	NOT YET	
1. Does your child stand up in the middle of the floor by himself and take several steps forward?	●	○	○	10
2. Does your child climb onto furniture or other large objects, such as large climbing blocks?	○	●	○	5
3. Does your child bend over or squat to pick up an object from the floor and then stand up again without any support?	●	○	○	10

E101160200

Ages & Stages Questionnaires®, Third Edition (ASQ-3™), Squires & Bricker
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PEDS: Parents' Evaluation of Developmental Status

- For children 0 to 8 years
- Many languages
- Takes 2 to 10 minutes
- Elicits parents' concerns (surveillance?)
- Sorts children into high, moderate, or low risk
- 4th – 5th grade reading level
- Score/Interpretation form used longitudinally
- http://pedstest.com/index.php

PEDS RESPONSE FORM

Paragon
Provider

Child's Name Russell Richards Parent's Name Mr. and Mrs. Richards

Child's Birthday 3/21/04 Child's Age 30 months Today's Date 9/23/2006

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

Mostly his behavior. He doesn't mind me or seem to listen at all. Tantrums all the time

Do you have any concerns about how your child talks and makes speech sounds?
Circle one: (No) Yes A little COMMENTS:

Do you have any concerns about how your child understands what you say?
Circle one: No Yes (A little) COMMENTS:

Do you have any concerns about how your child uses his or her hands and fingers to do things?
Circle one: (No) Yes A little COMMENTS:

Do you have any concerns about how your child uses his or her arms and legs?
Circle one: (No) Yes A little COMMENTS:

Do you have any concerns about how your child behaves?
Circle one: No (Yes) A little COMMENTS:
This may just be the terrible twos but it is really terrible

Do you have any concerns about how your child gets along with others?
Circle one: (No) Yes A little COMMENTS:

Do you have any concerns about how your child is learning to do things for himself/herself?
Circle one: (No) Yes A little COMMENTS:
He tries to be too independent

Do you have any concerns about how your child is learning preschool or school skills?
Circle one: (No) Yes A little COMMENTS:
I think he's too young for that sort of stuff

Please list any other concerns.

Nothing other than behavior and listening.

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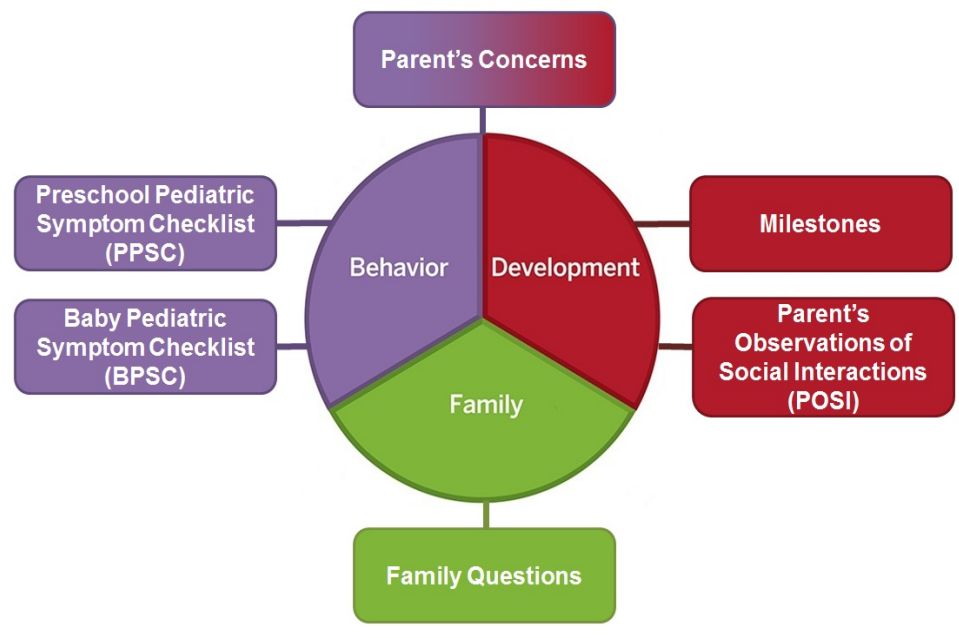
The Survey of Well-being of Young Children



- 12 age-specific forms keyed to periodicity schedule
- Development: 1-65 mos (10 items)
- Autism: 16-35 mos (7 items)
- Time: <5 minutes
- Free (public domain)
- www.thesywc.org

SWYC:
9 months

DEVELOPMENTAL MILESTONES

These questions are about your child's development. Please tell us how much your child is doing each of these things. If your child doesn't do something any more, choose the answer that describes how much he or she used to do it. Please be sure to answer ALL the questions.

	Not Yet	Somewhat	Very Much
Holds up arms to be picked up			
Gets into a sitting position by him or herself			
Picks up food and eats it			
Pulls up to standing			
Plays games like "peek-a-boo" or "pat-a-cake"			
Calls you "mama" or "dada" or similar name			
Looks around when you say things like "Where's your bottle?" or "Where's your blanket?"			
Copies sounds that you make			
Walks across a room without help			
Follows directions - like "Come here" or "Give me the ball"			

BABY PEDIATRIC SYMPTOM CHECKLIST (BPSC)

These questions are about your child's behavior. Think about what you would expect of other children the same age, and tell us how much each statement applies to your child.

	Not at all	Somewhat	Very Much
Does your child have a hard time being with new people?			
Does your child have a hard time in new places?			
Does your child have a hard time with change?			
Does your child mind being held by other people?			
Does your child cry a lot?			
Does your child have a hard time calming down?			
Is your child fussy or irritable?			
Is it hard to comfort your child?			
Is it hard to keep your child on a schedule or routine?			
Is it hard to put your child to sleep?			
Is it hard to get enough sleep because of your child?			
Does your child have trouble staying asleep?			

********** Please continue on the back **********

Screening Results

- Low risk
  - Review result, highlighting strengths
  - Inform when next screening will occur
- High risk
  - Review responses to items
  - Provide clinical interpretation
  - Discuss next steps (Referral, Follow-up)

Implementation: Screening & Continued Care

- Early return visits for continued close surveillance with ongoing concerns
- Refer when results are concerning:
  - EI and early childhood programs
  - Medical workup as indicated (PCP vs. Consultant)
  - Developmental evaluation to identify a specific developmental disorder
- Initiate a program of chronic condition management for the child identified with a developmental or behavioral disorder.
- Family support services (eg, Family Voices, Parent to Parent USA, and state-based Family-to-Family Health Information Centers)

Implementation: Screening and Medical Testing

Medical diagnostic evaluation to identify an underlying etiology and to provide related counseling and treatment.

- Hearing and vision screening
- Motor delay: detailed neurologic examination
  - ↑ tone → consider brain imaging
  - normal or ↓ tone → creatine kinase (CK) and TSH should be obtained
- Global delay, intellectual disability, or autism, consider chromosome microarray, Fragile X testing
  - Consider metabolic testing depending on H&P

Follow-through is ESSENTIAL!

Screening

Referral

Follow-Up

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Ongoing Challenges to Referral

- High rates of non-referral (~40%)
- High rates of incomplete referrals and evaluations
  - Consider parental health literacy.
  - Rates improved by strategies that closely connect the medical home with EI such as electronic transmission of referrals.
- Barriers
  - Lack of feedback from EI program about the child's progress and outcomes.
  - Increased concern with quality of services.

Jimenez ME, Fiks AG, Shah LR, et al. Factors associated with early intervention referral and evaluation: a mixed methods analysis. *Acad Pediatr*. 2014;14(3):315–323; Jimenez, ME, Barg FK, Guevara JP, et al. The impact of parental health literacy on the early intervention referral process. *J Health Care Poor Underserved*. 2013;24(3);1053–1062; and Lipkin PH, Macias MM, Baer-Chen B, et al. Trends in pediatricians' developmental screening: 2002-2016. *Pediatrics*. 2020;145(4):e20190851.

Developmental Surveillance and Screening in 2020: Next Steps

- Work toward early universal developmental screening of all children for earliest identification of developmental disorders, with identification of barriers limiting this practice.
- Additional efforts needed to enhance referral systems, improve EI programs, and provide better tracking of child outcomes.
- Improved access to evaluation and treatment options for children with concerning screen results needed.
- Continue advocating for effective and evidence-based interventions across EI and treatment programs.
- Need for improved communication between pediatricians and local EI professionals.

st on May 11, 2020

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CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

Promoting Optimal Development: Identifying Infants and Young Children With Developmental Disorders Through Developmental Surveillance and Screening

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STAR CENTER | Screening Technical Assistance & Resource Center

★ CHILD DEVELOPMENT ★ MATERNAL DEPRESSION ★ SOCIAL DETERMINANTS OF HEALTH ★

The STAR Center offers information and resources, including screening recommendations, practice tools, and individualized assistance, to help pediatric health care providers implement effective screening, referral, and follow-up for developmental milestones, maternal depression, and social determinants of health.

Screening Recomendations

Screening Tools

Interactive Training

Screening Process Resources

Practice Success Stories

Questions? We Can Help.

www.aap.org/screening

Bright Futures™

prevention and health promotion for infants, children, adolescents, and their families™

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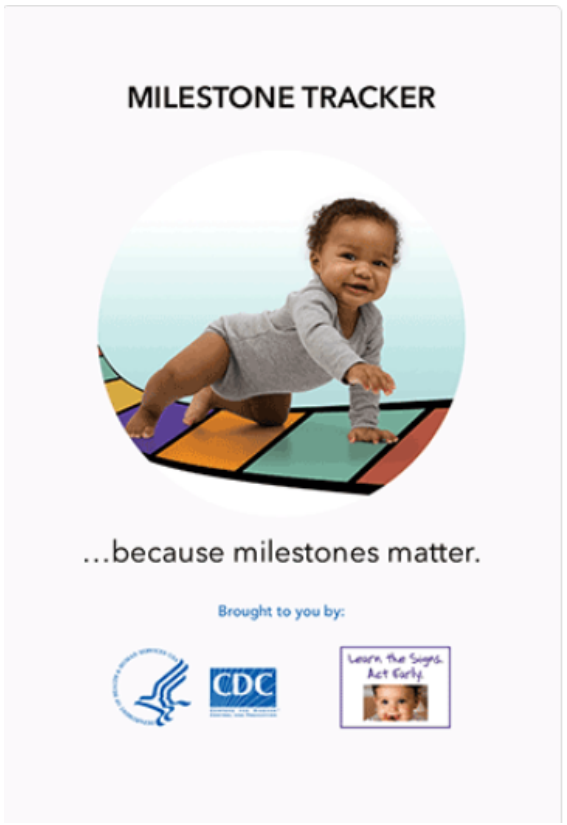
Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Learn the Signs. Act Early.

CDC's Developmental Milestones

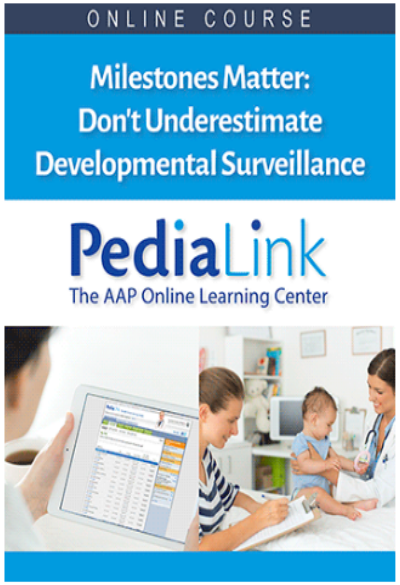
Español (Spanish)



CDC's Milestone Tracker App

Español (Spanish)

Download it free today on iOS and Android devices in English and Spanish



Milestones Matter: Don't Underestimate Developmental Surveillance

MOC

AVAILABLE:
01/07/2020 - 01/06/2023

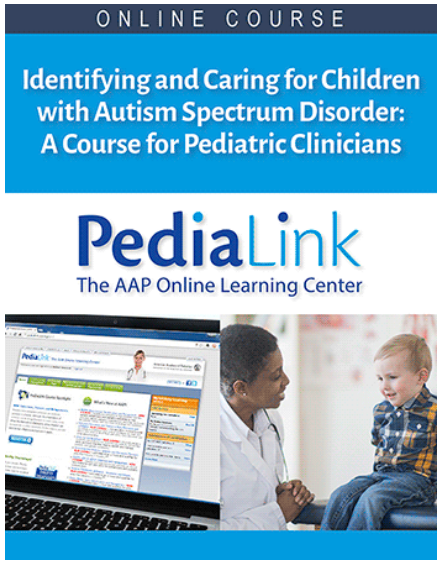
DESCRIPTION & LEARNING OBJECTIVES | CREDIT INFORMATION | REGISTRATION FEES | COURSE DETAILS | TECHNICAL REQUIREMENTS

FORMAT:

Online Course

~~Price $0.00~~

Member Price **$0.00**



Birth to 5: Watch Me Thrive!

- Coordinated federal effort to encourage healthy child development, universal developmental and behavioral screening for children, and support for the families and providers who care for them.

  www.acf.hhs.gov/programs/ecd/watch-me-thrive

- *Birth to 5: Watch Me Thrive!* seeks to:
  - Celebrate milestones.
  - Promote universal screening.
  - Identify possible delays and concerns early.
  - Enhance developmental supports.

- Provides:
  - Compendium of research-based screening tools
  - "User's Guides" for multiple audiences
  - Electronic package of resources for follow-up and support
  - Screening passport available!

Developmental Surveillance and Screening During the Pandemic

- Continue to follow recommendations from the AAP developmental surveillance and screening clinical report
- Consistent with AAP guidance on well-care during the COVID-19 pandemic, continue in-person well-care whenever possible.
  - Incorporate strategies such as scheduling well-care at different times of day than sick visits.
- Continue to utilize available resources and communicate with community partners and EI, discussing any changes during this time.

American Academy of Pediatrics

Developmental Screening Resources

- Early Childhood Technical Assistance Center (ECTA) www.ectacenter.org Provides practice improvement tools, contact information for state Part C coordinators, and other early childhood resources.
- Center for Parent Information & Resources www.parentcenterhub.org/resourcelibrary Provides information on disabilities, IDEA, and effective educational practices (English and Spanish).
- Learn the Signs. Act Early. www.cdc.gov/ncbddd/autism/actearly Provides parent, provider, and childcare educational resources on developmental milestones and developmental disabilities. Milestones Matter - Encourage Parents to Track Their Child's Development.

Developmental Screening Resources cont.

- CDC's free Milestone Tracker App helps parents monitor their children's development from age 2 m–5 yrs. Interactive checklists with photos and videos make tracking milestones easy and fun. Generates a personalized summary to help you perform developmental surveillance as recommended by the AAP and offers parents tips for developmental promotion and information about what to do if there is a developmental concern. Visit www.cdc.gov/MilestoneTracker to print a free poster about the app to hang in your exam room.
- Birth to 5: Watch Me Thrive! Website and Screening Passport www.acf.hhs.gov/programs/ecd/watch-me-thrive and www.acf.hhs.gov/sites/default/files/ecd/birth_to_5_watch_me_thrive_screening_passport_desktop_printing.pdf
- National Academy for State Health Policy (NASHP) Healthy Child Development State Resource Center: healthychild.nashp.org
  One stop shop for state and national tools related to healthy child development policies and practices.

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References

- Hyman SL, Levy SE, Myers SM, AAP Council on Children With Disabilities, and Section on Developmental and Behavioral Pediatrics. Identification, evaluation, and management of children with autism spectrum disorder. *Pediatrics*. 2020;145(1):e20193447.
- Lipkin PH, Macias MM, AAP Council on Children With Disabilities, and Section on Developmental and Behavioral Pediatrics. Promoting optimal development: identifying infants and young children with developmental disorders through developmental surveillance and screening. *Pediatrics*. 2020;145(1):e20193449.
- Lipkin PH, Macias MM, Baer-Chen B, Coury D, Gottschlich EA, Hyman SL, Sisk B, Wolfe A, Levy SE. Trends in pediatricians' developmental screening: 2002–2016. *Pediatrics*. 2020;145(4):e20190851.
- Jimenez ME, Fiks AG, Shah LR, Gerdes M, Ni AY, Pati S, Guevara JP. Factors associated with early intervention referral and evaluation: a mixed methods analysis. *Acad Pediatr*. 2014;14(3):315–323.
- Jimenez, ME, Barg FK, Guevara JP, Gerdes M, Fiks AG. The impact of parental health literacy on the early intervention referral process. *J Health Care Poor Underserved*. 2013;24(3);1053–1062.

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