

Screening for Speech and Language Delay and Disorders in Children Aged 5 Years or Younger: US Preventive Services Task Force Recommendation Statement

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abstract

BACKGROUND: This report is an update of the US Preventive Services Task Force (USPSTF) 2006 recommendation on screening for speech and language delay in preschool-aged children.

METHODS: The USPSTF reviewed the evidence on screening for speech and language delay and disorders in children aged 5 years or younger, including the accuracy of screening in primary care settings, the role of surveillance by primary care clinicians, whether screening and interventions lead to improved outcomes, and the potential harms associated with screening and interventions.

POPULATION: This recommendation applies to asymptomatic children aged 5 years or younger whose parents or clinicians do not have specific concerns about their speech, language, hearing, or development.

RECOMMENDATION: The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for speech and language delay and disorders in children aged 5 years or younger (I statement).

The US Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific preventive care services for patients without related signs or symptoms.

It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision-making to the specific patient or situation. Similarly,

the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.

SUMMARY OF RECOMMENDATION AND EVIDENCE

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for speech and language delay and disorders in children aged 5 years or younger (I statement). (See the Clinical Considerations section for suggestions for practice regarding the I statement.)

Recommendations made by the US Preventive Services Task Force are independent of the US government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the US Department of Health and Human Services.

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RATIONALE

Importance

Speech and language delays and disorders can pose significant problems for children and their families. Children with speech and language delays develop speech or language in the correct sequence but at a slower rate than expected, whereas children with speech and language disorders develop speech or language that is qualitatively different from typical development. Differentiating between delays and disorders can be complicated. First, screening instruments have difficulty distinguishing between the 2. Second, although the majority of school-aged children with language disorders present with language delays as toddlers, some children outgrow their language delay.¹

Information about the prevalence of speech and language delays and disorders in young children in the United States is limited. In 2007, ~2.6% of children ages 3 to 5 years received services for speech and language disabilities under the Individuals With Disabilities Education Act (IDEA).² In 1 population-based study in 8-year-olds in Utah, the prevalence of children with communication disorders (speech or language) on the basis of special education or *International Classification of Diseases, Ninth Revision*, classifications was 63.4 cases per 1000 children.³ The prevalence of isolated communication disorders (ie, children without a concomitant diagnosis of autism spectrum disorder or intellectual disability) was 59.1 cases per 1000 children.

Information on the natural history of speech and language delays and disorders, including how outcomes may change as a result of screening or treatment, is also limited.

Detection

The USPSTF found inadequate evidence on the accuracy of screening instruments for speech and language delay for use in primary care settings. Several factors limited the applicability of the evidence to routine screening in primary care settings.

The USPSTF also found inadequate evidence on the accuracy of surveillance (active monitoring) by primary care clinicians to identify children for further evaluation for speech and language delays and disorders.



Screening for Speech and Language Delay and Disorders in Children Aged 5 Years or Younger: Clinical Summary

Population	Asymptomatic children aged ≤5 years whose parents or clinicians do not have specific concerns about their speech, language, hearing, or development
Recommendation	No recommendation. Grade: I statement (insufficient evidence)

Risk Assessment	Risk factors that have been reported to be associated with speech and language delay and disorders include male sex, family history of speech and language impairment, low parental education level, and perinatal risk factors (e.g., prematurity, low birth weight, and birth difficulties).
Screening Tests	The USPSTF found inadequate evidence on specific screening tests for use in primary care settings. Widely used screening tests in the United States include the Ages and Stages Questionnaire, the Language Development Survey, and the MacArthur-Bates Communicative Development Inventory.
Treatment and Interventions	Interventions for childhood speech and language disorders vary widely and can include speech-language therapy sessions and assistive technology (if indicated). Interventions are commonly individualized to each child’s specific pattern of symptoms, needs, interests, personality, and learning style.
Balance of Benefits and Harms	The current evidence is insufficient to assess the balance of benefits and harms of screening and interventions for speech and language delay and disorders in young children in primary care settings.
Other Relevant USPSTF Recommendations	The USPSTF recommends screening for hearing loss in all newborn infants, and is developing a recommendation on screening for autism spectrum disorder in young children (available at www.uspreventiveservicestaskforce.org).

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to www.uspreventiveservicestaskforce.org.

Benefits of Early Detection and Intervention

The USPSTF found inadequate evidence on the benefits of screening and early intervention for speech and language delay and disorders in primary care settings.

The USPSTF found inadequate evidence on the effectiveness of screening in primary care settings for speech and language delay and disorders on improving speech, language, or other outcomes. Although the USPSTF found evidence that interventions improve some measures of speech and language for some children, there is inadequate evidence on the effectiveness of interventions in children detected by screening in a primary care setting.

The USPSTF found inadequate evidence on the effectiveness of interventions for speech and language delay and disorders on outcomes not specific to speech (eg, academic achievement, behavioral competence, socioemotional development, and quality of life).

Harms of Early Detection and Intervention

The USPSTF found inadequate evidence on the harms of screening in primary care settings and interventions for speech and language delay and disorders in children aged 5 years or younger.

USPSTF Assessment

The USPSTF concludes that the evidence is insufficient and that the balance of benefits and harms of screening and interventions for speech and language delay and disorders in young children in primary care settings cannot be determined.

CLINICAL CONSIDERATIONS

Patient Population Under Consideration

This recommendation applies only to asymptomatic children whose

parents or clinicians do not have specific concerns about their speech, language, hearing, or development. It does not apply to children whose parents or clinicians raise those concerns; these children should undergo evaluation and, if needed, treatment.

This recommendation discusses the identification and treatment of “primary” speech and language delays and disorders (ie, in children who have not been previously identified with another disorder or disability that may cause speech or language impairment).

Suggestions for Practice Regarding the I Statement

Potential Preventable Burden

Information about the prevalence of speech and language delays and disorders in young children in the United States is limited. In 2007, ~2.6% of children ages 3 to 5 years received services for speech and language disabilities under IDEA.²

Childhood speech and language disorders include a broad set of disorders with heterogeneous outcomes. Information about the natural history of these disorders is limited, because most affected children receive at least some type of intervention. However, there is some evidence that young children with speech and language delay may be at increased risk of language-based learning disabilities.⁴

Potential Harms

The potential harms of screening and interventions for speech and language disorders in young children in primary care include the time, effort, and anxiety associated with further testing after a positive screen, as well as the potential detriments associated with diagnostic labeling. However, the USPSTF found no studies on these harms.

Current Practice

Surveillance or screening for speech and language disorders is commonly

recommended as part of routine developmental surveillance and screening in primary care settings (ie, during well-child visits).⁵ In practice, however, such screening is not universal. The previous evidence review⁶ found that 55% of parents reported that their toddler did not receive any type of developmental assessment at their well-child visit, and 30% of parents reported that their child’s health care provider had not discussed with them how their child communicates.⁷ In a 2009 study, approximately half of responding pediatricians reported that they “always or almost always” use a standardized screening tool to detect developmental problems in young children; ~40% of respondents reported using the Ages and Stages Questionnaire (ASQ).⁸ The USPSTF distinguishes between screening in primary care settings and diagnostic testing, which may occur in other settings.

Assessment of Risk

On the basis of a review of 31 cohort studies, several risk factors have been reported to be associated with speech and language delay and disorders, including male sex, family history of speech and language impairment, low parental educational level, and perinatal risk factors (eg, prematurity, low birth weight, and birth difficulties).⁹

Screening Tests

The USPSTF found inadequate evidence on specific screening tests for use in primary care. Widely used screening tests in the United States include the ASQ, the Language Development Survey (LDS), and the MacArthur-Bates Communicative Development Inventory (CDI).

Interventions

Interventions for childhood speech and language disorders vary widely and can include speech-language therapy sessions and assistive technology (if indicated).

Interventions are commonly individualized to each child's specific pattern of symptoms, needs, interests, personality, and learning style. Treatment plans also incorporate the priorities of the child, parents, and/or teachers. Speech-language therapy may take place in various settings, such as speech and language specialty clinics, the school or classroom, and the home. Therapy may be administered on an individual basis and/or in groups, and may be child-centered and/or include peer and family components. Therapists may be speech-language pathologists, educators, or parents. The duration and intensity of the intervention depend on the severity of the speech or language disorder and the child's progress in meeting therapy goals.

Other Approaches to Prevention

The USPSTF recommends screening for hearing loss in all newborn infants (B recommendation). The USPSTF is developing a recommendation on screening for autism spectrum disorder in young children. These recommendations are available on the USPSTF Web site (www.uspreventiveservicestaskforce.org).

Useful Resources

All states have designated programs that offer evaluation and intervention services to children ages 0 to 5 years. IDEA is a law that ensures early intervention, special education, and related services for children with disabilities in the United States. Infants and toddlers (birth to age 2 years) with disabilities and their families may receive early intervention services under IDEA part C, whereas children and adolescents (ages 3–21 years) may receive special education and related services under IDEA part B.¹⁰

OTHER CONSIDERATIONS

Research Needs and Gaps

The USPSTF identified several evidence gaps, including a critical

need for studies specifically designed and executed to address whether systematic, routine screening for speech and language delay and disorders in young children in primary care settings leads to improved speech, language, or other outcomes. Studies on the feasibility of speech- and language-specific screening as part of routine developmental screening and that identify the most effective screening instruments are needed. Studies on the potential harms of screening and interventions are also needed.

Information about the prevalence of speech and language delays and disorders in young children in the United States is lacking. More information about the specific factors associated with intervention effectiveness, including the potential effects of age at diagnosis, age at treatment, treatment type, and treatment duration, is needed.

DISCUSSION

Burden of Disease

According to the American Speech-Language-Hearing Association, speech sound disorders affect 10% of children. The estimated prevalence of language difficulty in preschool-aged children is between 2% and 19%. Specific language impairment is one of the most common childhood disorders, affecting 7% of children. More than 2 million Americans stutter, half of whom are children.¹¹

Childhood speech and language disorders include a broad set of disorders with heterogeneous outcomes. Young children with speech and language delay may be at increased risk of learning disabilities once they reach school age.⁴ Children with speech sound disorders or language impairment are at greatest risk of being diagnosed with a literacy disability,¹² including difficulty with reading in grade school^{13–16} and/or with written language.¹⁷

The risk of poor outcomes is greater for children whose disorders persist past the early childhood years and for those who have lower IQ scores and language impairments rather than only speech impairments.¹⁸ Children who are diagnosed with language delays may have more problems with behavior and psychosocial adjustment, which may persist into adulthood.^{19,20}

Scope of Review

To update its 2006 recommendation statement, the USPSTF commissioned a systematic evidence review on screening for speech and language delay and disorders in children aged 5 years or younger. The USPSTF reviewed the evidence on the accuracy of screening in primary care settings, as well as the role of surveillance (active monitoring) by primary care clinicians to identify children for further diagnostic evaluation and interventions for speech and language delays and disorders. The USPSTF also evaluated evidence on whether screening and interventions for speech and language delay and disorders lead to improved speech, language, or other outcomes, as well as the potential harms associated with screening and interventions.

The evidence review focused on speech and language delays and disorders with a "primary" or developmental etiology. That is, the review was limited to studies in children who had not been previously identified with another disorder or disability that may cause speech or language impairment. The review excluded studies that focused on acquired, focal causes of speech and language delay. Although abnormal speech and language development may be associated with autism spectrum disorder, this review did not evaluate screening for autism spectrum disorder. The USPSTF is currently reviewing the evidence on screening for autism spectrum

disorder for a separate recommendation statement.

The evidence review focused on studies conducted in children aged 5 years or younger in which any child who screened positive received formal diagnostic assessment for speech and language delays and disorders by 6 years of age. Studies of treatment and/or intervention outcomes were not restricted by age at treatment but focused primarily on toddlers and preschool-aged children.

The evidence review included randomized controlled trials and other systematic reviews, as well as cohort studies of screening and surveillance for speech and language delays and disorders. The USPSTF focused on screening instruments specific to speech and language conditions, as well as more general developmental screening tools with speech and language components. All tools needed to be feasible for use in primary care or the results had to be interpretable within a primary care setting. For surveillance studies, the USPSTF considered processes of monitoring speech and language in primary care settings rather than formal screening instruments. Screening and surveillance studies had to be conducted or results had to be interpretable in primary care settings. In contrast, treatment studies were not limited by study setting, which included speech and language clinics, schools, and/or home settings.

The current review differed somewhat from the previous review in that it focused on screening tools that can be administered within the usual length of a primary care visit (≤ 10 minutes) or those that require > 10 minutes and are administered outside of a primary care setting, if the results can be readily interpreted by a primary care clinician. The current review also focused on studies in patients without known causes of speech and language delay (because these are the patients most

likely to be identified through screening).

Accuracy of Screening Tests

The USPSTF identified 24 studies (5 good- and 19 fair-quality)⁹ that evaluated the accuracy of 20 different screening tools. The majority of studies included 2- and 3-year-olds, but the ages varied. Recruitment techniques and venues included advertisements, birth registries, early childhood programs, university research programs, medical practices, and school registration and entrance medical examinations.

The USPSTF considered 7 parent-administered screening tools: the ASQ, the General Language Screen (formerly known as the Parent Language Checklist), the Infant-Toddler Checklist, the LDS, the CDI, the Speech and Language Parent Questionnaire, and the Ward Infant Language Screening Test, Assessment, Acceleration, and Remediation. The USPSTF considered 13 screening tools administered by professionals or paraprofessionals: the Battelle Developmental Inventory, the BRIGANCE Preschool Screen, the Davis Observation Checklist for Texas, the Denver Articulation Screening Exam, DENVER II (formerly the Denver Developmental Screening Test), a standard developmental screen administered by nurses, Early Screening Profiles, the Fluharty Preschool Speech and Language Screening Test, the Northwestern Syntax Screening Test, the Screening Kit of Language Development, the Sentence Repetition Screening Test, the Structured Screening Test (formerly known as the Hackney Early Language Screening Test), and Rigby's trial speech screening test.

Test performance characteristics varied widely. Parent-administered screening tools generally performed better than other tools. Among parent-administered tools, sensitivity was generally higher for the CDI, the Infant-Toddler Checklist, and the LDS.

Specificity was comparable across the CDI, the LDS, and the ASQ.

The applicability of the evidence to screening in primary care is limited by several factors. Most studies focused on prescreened populations with a relatively high prevalence of language delays and disabilities (usually $> 10\%$). The USPSTF found it difficult to compare the performance of individual screening tools across populations because individual studies used different tools and outcome measures in different populations and settings. Included studies used well-regarded instruments used by speech-language pathologists as reference standards; however, individual studies used different reference standards. In addition to small sample sizes, some studies were conducted in countries with health care systems that are not comparable with that of the United States.

The USPSTF identified no studies on the accuracy of surveillance of speech and language development by primary care clinicians.

Effectiveness of Early Detection and Interventions

The review for the USPSTF identified 1 poor-quality randomized controlled trial of screening for language delays in children ages 18 and 24 months that followed outcomes at ages 3 and 8 years.²¹ This cluster-randomized trial and follow-up study was conducted in 9419 children at 55 child health centers in 6 geographic regions of The Netherlands. Outcomes included the percentage of children who attended a special school, percentage who repeated a class because of language problems, and percentage who scored low on standardized language tests. The authors concluded that screening toddlers for language delay reduces requirements for special education and leads to improved language performance at age 8 years. However, the study was rated as poor quality,

and therefore not included in the USPSTF's deliberation, because of several limitations, including the following: suboptimal rates of screening and low retention of trial subjects, reliance on indirect measures of speech and language outcomes in school-aged children (instead of individualized testing), lack of blinding to screening or treatment status by teachers and parents who assessed outcomes, and lack of adjustment for other potential reasons for placement in special education.

The USPSTF identified 13 fair- or good-quality studies on the potential benefits of treatment interventions for children diagnosed with specific speech and language delays and disorders that reported inconsistent findings on speech and language outcomes.⁹ The majority of the trials reported improvements in speech and language measures. However, the applicability of this evidence to routine screening in a primary care setting is limited, because many of the studies were conducted in very high risk populations (ie, high-prevalence populations). In addition, these studies did not report treatment effectiveness in children whose speech and language delay had actually been detected by screening; instead, the delays had often been identified as a result of parent or teacher concerns. A majority of the intervention studies were conducted outside of the United States, which could also limit the applicability of findings.

The USPSTF identified 4 fair- or good-quality studies that reported inconsistent findings on other outcomes, including socialization, reading comprehension, parental stress, and child well-being or attention level.

Potential Harms of Screening and Interventions

The USPSTF identified no studies on the potential harms of screening in

primary care settings for speech and language delays and disorders, such as labeling or anxiety. The USPSTF identified 2 studies (1 fair-quality and 1 good-quality) on the potential harms of treatment that reported inconsistent findings.⁹ The treatment group of 1 study reported reduced parental stress, whereas another study reported no effect on child well-being or attention level. Treatment harms were generally not measured or reported; the 2 included studies reported few data on a limited number of outcomes.

Estimate of Magnitude of Net Benefit

The USPSTF found inadequate evidence on the accuracy of screening or surveillance for speech and language delay and disorders in primary care settings. The USPSTF found inadequate evidence on the potential benefits of screening in primary care settings and treatment on speech, language, or other outcomes. The USPSTF found adequate evidence that treatment is associated with improvements in some speech and language measures, but inadequate evidence on its effectiveness in screen-detected children. The USPSTF found inadequate evidence on the association between treatment and outcomes other than speech and language. The USPSTF found inadequate evidence on the potential harms of screening in primary care settings and treatment of speech and language delay and disorders. Therefore, the USPSTF concludes that the evidence is insufficient and that the balance of benefits and harms of screening in primary care settings for speech and language delays and disorders in young children cannot be determined.

Response to Public Comment

A draft version of this recommendation statement was posted on the USPSTF Web site from November 18 to December 15, 2014. In response to public comment, the

USPSTF clarified that this recommendation applies only to asymptomatic children whose parents or clinicians do not have specific concerns about their speech, language, hearing, or development. The USPSTF also emphasized that this recommendation applies only to screening in primary care settings, and it noted the distinction between screening in primary care settings and diagnostic testing, which may occur in other settings. The USPSTF also noted that this recommendation does not evaluate screening for autism spectrum disorder, which the Task Force will address in a separate recommendation statement. The USPSTF also called for research on socioeconomic and other factors associated with risks, assessment, and management of speech and language delay and disorders in children.

UPDATE OF PREVIOUS USPSTF RECOMMENDATION

This recommendation replaces the 2006 USPSTF recommendation on screening for speech and language delay in preschool-aged children. The current recommendation is consistent with the previous recommendation, which concluded that the evidence on the routine use of brief, formal screening instruments in primary care settings to detect speech and language delay in children aged 5 years or younger is insufficient.

RECOMMENDATIONS OF OTHERS

The American Academy of Pediatrics²² recommends that developmental surveillance be incorporated at every well-child preventive care visit for children from birth through age 3 years. It also recommends that any concerns raised during surveillance should be promptly addressed with standardized developmental screening tests. In addition, it recommends that screening tests should be administered regularly at

well-child visits at the ages of 9, 18, and 24 or 30 months.

MEMBERS OF THE USPSTF

Members of the USPSTF at the time this recommendation was finalized* are as follows: Albert L. Siu, MD, MSPH, Chair (Mount Sinai School of Medicine, New York, and James J. Peters Veterans Affairs Medical Center, Bronx, NY); Kirsten Bibbins-Domingo, PhD, MD, MAS, Co-Vice Chair (University of California, San Francisco, San Francisco, CA); David Grossman, MD, MPH, Co-Vice Chair (Group Health, Seattle, WA); Linda Ciofu Baumann, PhD, RN, APRN (University of Wisconsin, Madison, WI); Karina W. Davidson, PhD, MASC (Columbia University, New York, NY); Mark Ebell, MD, MS (University of Georgia, Athens, GA); Francisco A.R. García, MD, MPH (Pima County Department of Health, Tucson, AZ); Matthew Gillman, MD, SM (Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, MA); Jessica Herzstein, MD, MPH (Independent Consultant, Washington, DC); Alex R. Kemper, MD, MPH, MS (Duke University, Durham, NC); Alexander H. Krist, MD, MPH (Fairfax Family Practice, Fairfax, and Virginia Commonwealth University, Richmond, VA); Ann E. Kurth, PhD, RN, MSN, MPH (New York University, New York, NY); Douglas K. Owens, MD, MS (Veterans Affairs Palo Alto Health Care System, Palo Alto, and Stanford University, Stanford, CA); William R. Phillips, MD, MPH (University of Washington, Seattle, WA); Maureen G. Phipps, MD, MPH (Brown University, Providence, RI); and Michael P. Pignone, MD, MPH (University of North Carolina, Chapel Hill, NC). Former USPSTF members Michael L. LeFevre, MD, MSPH, and Virginia Moyer, MD, also contributed to the development of this recommendation.

*For a list of current Task Force members, see <http://www.uspreventiveservicestaskforce.org/Page/Name/our-members>.

ABBREVIATIONS

ASQ: Ages and Stages Questionnaire
CDI: MacArthur-Bates Communicative Development Inventory
IDEA: Individuals With Disabilities Education Act
LDS: Language Development Survey
USPSTF: US Preventive Services Task Force

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