Late Talkers

Why the Wait-and-See Approach Is Outdated

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KEYWORDS

• Late talkers • Wait-and-see • Early intervention • Toddlers • Language disorder
• Specific language impairment • Parent-implemented intervention • Late bloomers

KEY POINTS

- A wait-and-see approach delays referral of a child for further developmental evaluation when s/he fails a language screening in toddlerhood.
- The view that most late talkers "catch up" seems to be outdated because they do not necessarily meet their same-age peers in all aspects of development.
- Late talking can also impact early socialization and school readiness, and can place some late talkers at risk for life-long disability.
- Interprofessional education and practice supports early referral for late talkers who are at-risk.
- Advances in the science of brain development, language development and disorders, and epigenetics support early identification and intervention, not a wait-and-see approach for late talkers.

INTRODUCTION

A wait-and-see approach with late talking toddlers—that is, not referring a late talker (LT) who fails a language screening for evaluation—can occur for a number of reasons. For example, a lack of knowledge in bilingual development has led nurses to delay referrals.[1,2] Nurses have reported lack of training in screening procedures as well as in bilingual development as primary problems in following through on referring LTs for further evaluation. **Box 1** reports related issues and suggestions for serving bilingual toddlers. From a speech-language pathologist's perspective, there is a gap between what is known about LTs and their outcomes when deciding on referral of a child for

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Box 1
The unique circumstance of screening bilingual children

Bilingualism raises unique challenges for professionals without interprofessional practice training to screen children under 3 years of age for potential language delay.[1,2] Challenges include:
- The linguistic variations between the child's languages themselves
- The variations of timing each language introduction
- Cultural mismatch between screener or evaluators and the child/family

Professionals may feel underprepared in the knowledge of bilingual development and in the skill of screening procedures. Lack of training can result in:
- Using the screener's primary language rather than the child's language as the screening language
- Altering the screening procedure
- A misconception that bilingual children need more time to learn 2 languages

The consequences of these actions are:
- Invalidation of screening results,
- Delay to refer the child for further evaluation, or
- To overrepresent children of individual cultural backgrounds in evaluation/treatment

The American Speech-Language-Hearing Association's position when differentiating between LANGUAGE DISORDER and a language difference[3]:
- Communication disorders will be evident in all languages used by an individual
- Account for the process of (dual) language development, proficiency, and dominance
- Fluctuation

In addition to parents, consider working alongside other caregivers, siblings, or cousins who are familiar with the child, and his or her culture and language. Discuss the processes of screening/referral for evaluation within the family's cultural framework. In some cultures, an individual's development may not take precedence over behaviors that contribute to the family unit.

Concepts to understand:
- Simultaneous bilingual—before 3 years of age, the child acquires 2 languages at the same time
- Sequential bilingual—before 3 years of age, the child learns a primary language, and after 3 years of age, the child learns a second language
- Proficiency—the degree to which the child can speak and/or comprehend with native-like competence
- Code switching— the child changes languages between phrases or sentences that is considered typical in bilingual development

further evaluation. The American Speech-Language-Hearing Association (ASHA) has implemented a 10-year plan to advance interprofessional education and interprofessional education practice (IPP) as part of its *Strategic Pathway to Excellence* (http://www.asha.org/uploadedFiles/ASHA-Strategic-Pathway-to-Excellence.pdf).

The aim here is to bridge some of the interprofessional education and IPP gap with what is known about LTs and their long-term outcomes so that alternatives to the wait-and-see approach will be considered. One alternative to the wait-and-see approach is to refer an LT to a state's early intervention program. IPP is well-established in the early intervention system under Part C of the Individuals with Disabilities Education Act[4] (**Box 2**). Over the short or long-term, at least 2 professionals will collaborate in service of a LT, at any given time. The following professions may be involved in managing the child's health care, overall development, and education:

- Audiology
- Medicine (eg, pediatrician, pediatric otolaryngologist)

Box 2
Part C of the Individual with Disabilities Education Act (IDEA)

Under the IDEA, the program Child Find for Infants and Toddlers seeks out children who would benefit from early intervention. Child Find is governed by early intervention regulations consistent with Part C of IDEA. Congress encourages states to participate in Part C to provide early intervention services, but it is voluntary. At this time, the 50 United States participate in programming, as do Puerto Rico and the District of Columbia. By and large, once a child is referred to a state's early intervention system by a pediatrician or caregiver, for instance, and a parent or legal guardian consents to the evaluation, an evaluation is completed (1) within a specified period of time, and (2) at least 2 evaluators must be able to assess 5 areas of development (motor, cognition, social/emotional, communication, and adaptive functioning). The established infrastructure of each state's early intervention system facilitates swift evaluation and, if eligible, the development of a plan, and interprofessional coordination of service.

Data from Individuals with Disabilities Education Improvement Act of 2004 (IDEA), Pub. L. No. 108–446, 118 Stat. 2647 (2004).

- Nursing (medical practice, school practice)
- Occupational therapy
- Physical therapy
- Psychology
- Speech-language pathology (with expertise in early intervention, school-based, private practice)
- Teaching (eg, preschool teacher, reading specialist, elementary education)

SCREENING IN THE PEDIATRICIAN'S OFFICE

The early screening of language development in the pediatrician's office serves an important public health function.[5] Early language screening is often the conduit to diagnosing primary disabilities such as autism or hearing impairment. However, early screening also identifies language delay as a primary diagnosis in its own right.[6] Fewer than 50 words at 24 months of age, for example, can be a valid reflection of language delay and general neurodevelopmental problems[6(p226)]. In their medical practice, Buschmann and colleagues[6] identified 100 late talking children between the ages of 21 and 24 months. Interprofessional evaluation in their medical office assessed health, receptive and expressive language, nonverbal cognition, and hearing. Despite comparable weight, height, and head circumference to their typical peers, the late-talking children:

- Presented with more middle ear ventilation disorders
- Reported more family histories of language disorders

Late talking children fell into 4 groups:

- Expressive language delay only (n = 61)
- Mixed receptive and expressive language delay (n = 17)
- Language delay with cognitive impairment (n = 18)
- Autism (n = 4)

The 4 subgroups of children with language delay were comparable in socioeconomic status (SES), family history of language disorders, and hearing health.

A diagnosis of autism can be a presumptive diagnosis for treatment eligibility in a state's early intervention program. However, enrollment of a child with language delay

as an isolated condition can be debated. Decisions depend on percent delay or standard deviation scores on formal testing, as well as other developmental domains affected. This paper concerns this latter group of children, customarily referred to as LTs.

DEFINING THE LATE TALKER

LTs are defined by an early language delay despite typical cognition, normal sensory and motor systems, and the absence of genetic or neurologic disease.[7,8] LTs in the 18- to 35-month age range have a prevalence of approximately 15%, but late talking is not a diagnostic category.[9,10] **Box 3** defines the language delay of LTs as primarily a late emergence of vocabulary growth.

A sluggish start to vocabulary acquisition is more likely to be transient if it occurs in isolation and is identified before 18 months of age.[5,13] In contrast, toddlers are more likely to persist in language delay the older they are when identified.[12,14] At 24 months of age, 50% to 70% of toddlers could "catch up" to peers.[15,16] Miniscalco and colleagues[12] (2005) reported that 82% of toddlers who failed screenings at 30 months of age were not recovering by age 6. Indeed, screening for language delay has become the standard between the ages of 24 and 30 months of age.

LATE TALKERS CAN BECOME CHILDREN WITH LANGUAGE DISORDER OR LATE BLOOMERS

Not all LTs eventually meet their same-age peers in language performance. Some LTs persist in their language delay and receive a diagnosis of a Language Disorder in elementary school. Language disorder is a diagnostic category in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-V).[9] It refers to children who have difficulty acquiring and using language that is not attributed to sensory, motor, genetic, cognitive, or other factors. Diagnosing a child with Language Disorder before the age of 4 years may be difficult according to the DSM-V owing to normal variations in language development.[9,17(p43)] For example, a boy's expressive vocabulary can vary from 79 words to 511 words at 24 months of age[11] and be considered within normal limits. Children with a diagnosis of Language Disorder are also referred to in the scientific literature as having a Specific Language Impairment[8] (SLI).

Late bloomers are LTs who do converge on average language performance, according to formal tests of language, as they approach school-age. However, late bloomers perform significantly below their same-age peers without a history of late talking.[18,19]

Box 3
Vocabulary delay in late talkers

Late talker
Thresholds of vocabulary size:
- Sum of fewer than 50 words at 24 months of age, or
- A vocabulary survey that falls under the 10th percentile at any age on the MacArthur-Bates Communicative Developmental Inventory: Words and Sentences form,[11] or
- Under the 15th percentile on the Language Development Survey at any age[7];

Or
No word combinations by 24 months of age:
Additional screening criteria[12]:
Poor verbal comprehension,
Or
Parental concern.

WHY WAIT AND SEE?

The wait-and-see approach has been subject to debate.[6,12,20–22] The origins of the wait-and-see approach include fear of harms in identifying children as possibly delayed.[23] Harms include extra time, increased effort, and anxiety associated with further testing of the child. However, speech-language pathologists report that caregiver stress can already be ongoing from anxiety that their child is not talking when expected, or from parents who differ in opinion on the issue.[24] The parent–child relationship is negatively affected by late talking. Mothers report stress associated with late talking.[17] Diagnostic labeling has also been suggested as a potential detriment (eg, social stigma, preschool placement). Diagnostic labeling by disability is not required by the Individuals with Disabilities Education Act. When children are assessed in early intervention systems, they are generally not diagnosed. Children are discussed in terms of eligibility status for intervention. The US Preventive Services Task Force found no studies and, therefore, had insufficient evidence to make a recommendation regarding the potential harms (or benefits) of screening, referral, or intervention for speech-language disorders in young children.[23e.467]

The wait-and-see approach may also hinge on the perception that late talking is largely "self-correcting"[12(p1799)] because a majority of LTs are viewed as simply late blooming. There are at least 3 problems with this thinking. First, although late bloomers seem to catch up on standardized test performance, *late bloomers present a weaker endowment for language and related abilities*. That is, late bloomers do not truly approximate their same-age peers in all aspects of development. Being low average, in and of itself, on a test may not be problematic. However, a small vocabulary as early as 24 months of age continues to account for a slice of variance in language and memory performance through adolescence.[5,18] The implication is that early language intervention could potentially bolster the child's long-term outcome. In turn, early intervention could impact other domains of development that rely on oral language for their development. The late bloomer's ability to converge on typical test performance, thus far reported in the literature, does not account for other functional participation activities, such as socialization with peers, or behavior regulation and executive readiness skills needed for school.[25] Further, "catching up" has been based on group averages, which obscures individual late bloomers who fall below average in select domains.[26]

Second, *late talking is a significant risk factor for Language Disorder.*[27] The number of children who were LTs and persist with a Language Disorder is not inconsequential nor does Language Disorder have a trivial impact on everyday functioning.[8,27,28] For instance, Language Disorder is heritable. Adults with a history of Language Disorder, who were then parents of late talking children, reported about their own childhood that[28]:

- They were not facile with language.
- They were often misinterpreted by adults as having lack of motivation.
- They were self-conscious.
- They could not advocate for themselves.

As adults, their childhood experiences continued to impact their verbal interactions with other adults as well as within parental contexts.

Children with Language Disorder are more likely than typical children to be victimized and to have lower self-esteem.[29,30] The functional impact of Language Disorder is life long and intergenerational.

Third, *unerring predictors remain elusive* in differentiating late bloomers from the child with Language Disorder, particularly from screening alone. However, some consistent predictors of risk or success (eg, caregiver variables) dovetail well

with a model of early intervention that targets those factors specifically. A parent-implemented intervention[31] actively coaches caregivers. Further, this model is applied in the child's natural environment and contexts for the greatest functional impact. The remainder of this paper addresses:

- The 3 overarching problems of the wait-and-see approach
- The IPP movement to abandon the wait-and-see approach
- The parent-implemented model for early intervention

LATE BLOOMERS HAVE WEAK ENDOWMENT OF LANGUAGE ABILITY

By definition, late bloomers perform within age limits—many times within a low average performance range, on formal tests after having a slow start to vocabulary.[5] For many late bloomers, however, a weak endowment for language is observed throughout childhood. This weaker endowment for language is reflected as a gap in test performance between late bloomers and typical peers that does not narrow or close, nor does it sort out individual differences. The gap between these 2 groups spans a variety of language skills including:

- Vocabulary[32]
- Verb morphology[33,34] (verb endings)
- Syntax[33] (ie, sentence formulation)
- Reading[18]
- Narratives[35] (ie, story telling)

Late bloomers show slow maturation of neural processing. This is observed in event-related potential (ERP) responses to speech as early as 3 years of age through 5 years.[36] The late bloomer waveform is different. Although the typical child shows a higher proportion of ERP signals in the frontal neural region, late bloomers do not. By age 6 years, group differences in ERP responses disappear, but the gap between the late bloomers' and typical peers' test performance does not close.

Individual Analysis

Apart from the group, individual late bloomers do not reach near-typical performance on select subtests.[19,22,37] For example, Rescorla and colleagues followed late talking toddlers from 24 months through elementary school, until they were 17 years of age. Rescorla[18] (2009) reports on 26 of the late talking toddlers at age 17 years. At 17 years of age, the group tested within an average range on tests of grammar, vocabulary, memory, reading, and writing but poorer than their typical peers without the history of late talking. Still, individual late bloomers at age 17 performed below the normal range on individual subtests of the Woodcock-Johnson Psychoeducational Battery Tests of Achievement—Third Edition,[38] the Wechsler Memory Scale—Third Edition,[39] and the Comprehensive Assessment of Spoken Language,[40] when their typical peers did not:

- 15 of 26 LTs on the Verbal Paired Associates subtest of the Wechsler Memory Scale—Third Edition
- 17 of 26 LTs on the Logical Memory subtest of the Wechsler Memory Scale—Third Edition
- 4 of 26 LTs on the Writing Fluency subtest of the Woodcock-Johnson Psychoeducational Battery Tests of Achievement—Third Edition
- 4 of 26 LTs on the Syntax Construction subtest of the Comprehensive Assessment of Spoken Language

- 4 of 26 LTs on the Grammatical Judgment subtest of the Comprehensive Assessment of Spoken Language.

Other Domains

Social skills, executive function, and behavior regulation rely on prior language achievements.[25,35] By kindergarten, Aro and colleagues[25] (2014) found that late bloomers tested within the average range for language—albeit lower performance than their same-age peers, but late bloomers had:

- Greater executive function problems (eg, problems with multiple types of attention);
- More emotional and behavioral regulation problems (eg, arguing with others, impulsivity, motor restlessness)
- Fewer social skills (eg, poor cooperation, lack of appropriate assertiveness)

Typically, children transition to language as a vehicle for regulating themselves and others in the toddler and preschool years. LTs may be missing the language experiences during this critical time. Even LTs who seem to reach average language abilities by school-age subsequently have holes in the ensuing tools required for socialization and academic learning.[21,25]

LATE TALKING IS A RISK FACTOR FOR PERSISTENT LANGUAGE DISORDER

Late talking is a risk factor for persistent Language Disorder into the school-age years and the risk extends to reading disorder.[8,10,21,27,41,42] Reading is particularly vulnerable. Many LTs are re-enrolled in reading intervention at school-age after being discharged from prior language therapy.[27] At least 1 in 5 LTs will persist with Language Disorder into elementary school. Leonard's (2014), seminal book on Specific Language Impairment[8] used the term "risky"(p151) when writing about delaying intervention for LTs.

In typical development, the early phase of language growth is first focused on rapid vocabulary learning. For the LT, there is late emergence of vocabulary growth.[27,36] Once growth is initiated, the growth curve follows a typical trajectory for some early language skills,[27] but remains significantly below age expectation throughout childhood.[27,36] After 4 years of age, the child with Language Disorder transcends a small vocabulary size to include difficulty with word retrieval, grammar, figurative language, and larger linguistic units of discourse (eg, for cooperative learning, negotiation[43,44]). These are all language abilities needed for social and academic success. **Box 4** illustrates the association between early vocabulary and language development.

Grammatical impairments have become a clinical marker of Language Disorder[27]—specifically, failing to mark verb tense and agreement by elementary school.[52] The child with Language Disorder says "the dog bark," instead of "the dog barked" or "the dog barks." Hadley and Holt (2006)[53] potentially found an early indicator of this marker. Individual growth analysis of LTs with familial history of language impairment revealed a delay in emergence and slow growth of tense marking before 3 years of age in comparison with other LT peers.

Sentence formulations remain simple rather than complex in the child with Language Disorder.[54] From ages 8 to 16 years of age, there is a plateau in grammatical development that is also reflected in a poor ability to identify grammaticality of sentences. Rice[27] (2012) studied probands of LTs into adulthood. LTs who became children with Language Disorder presented with:

- A deceleration in grammatical development
- A premature ceiling in grammatical skill

Box 4
The importance of building a rich vocabulary early in development

Vocabulary to grammar

Relationships between early vocabulary and grammar are neither random nor dissociated.[45] Most typical children acquire an early object-dominant vocabulary. More object words in the early vocabulary correlates with a larger total vocabulary size, and subsequently the child meets early grammar milestones sooner than toddlers with fewer objects words.[45] The more object words in the early lexicon, the earlier the child will initiate language growth[46] (ie, have the word spurt) that late talkers fail to achieve by 24 months. The word spurt is important for the subsequent learning of verbs, and decontextualized talk.[45] The crux of learning verb vocabulary is acquiring the verb endings and complex sentence building. Rescorla and colleagues[32] found similar relationships between late talkers vocabulary and grammar even though the late talker vocabulary was small for age. The larger the small vocabulary, the more likely a word spurt was to occur.

Other skills

The endowment of a small vocabulary early in development continues to influence later academic skills.[36] Scheffner Hammer and colleagues (2016) found that being a late talker at 24 months was a strong predictor of 48-month receptive vocabulary size. Subsequently, having a low receptive vocabulary score at 48 months played a greater role than late talker status on school readiness for kindergarten. In Rescorla's cohort[18] of 26 late talking toddlers, expressive vocabulary size at 2 years of age accounted for 17% of the variance in vocabulary/grammar and verbal memory measures at 17 years of age.

Word Retrieval

The frequency with which a child encounters a word, says a word, and richer knowledge about a word, the more likely she or he will recall the word, and say that word when she or he needs to. These relationships are true of toddlers, preschoolers, and school-age children, as well as children with language disorder.[47–51] Proficient reading also requires easy retrieval of words from memory.[41] Language intervention provides both increased frequency and quality of vocabulary exposures needed to ease word retrieval.

LTs also come to literacy with uneven and weak[41] spoken language development. The timing of learning to read, as well as failing to read, both affect activation of the occipitotemporal lobes, where letter recognition occurs. Early vocabulary growth and timely speech processing development are linked to optimal language and reading performance at subsequent age intervals.[21,36,41] In work by Chen and associates (2016),[36] children with eventual Language Disorder, like the late bloomers discussed, were delayed in ERP response patterns from 3 through 5 years of age. By the age of 6 years, the ERP responses of children with Language Disorder also looked comparable to typical peers, but their language testing was below average. LTs are missing a sensitive period in early language development, when maturation of speech processing is necessary for advances in continuing language and literacy development.

On functional MRI, Preston and colleagues (2010)[21] found that, by elementary school, children with a history of late talking, when identifying a word to match a picture, showed reduced engagement of the following neural areas:

- Left superior temporal gyrus
- Left insula

- Subcortical structures including bilateral thalamus, right and left putamen–globus
- Pallidus, extending into the head of the caudate

In addition, the right superior parietal lobule activated for children with a history of late talking. Increased activation indicated greater effort in visual attention that was not seen in children with typical language development.

The prevalence of Language Disorder in school age children runs approximately 7% of age mates in the classroom.[8] For the reader's perspective, consider the current prevalence of autism, which receives far more media and policy attention[55]; prevalence is approximately 1.5% (Centers for Disease Control and Prevention [CDC], 2014). Not all children with Language Disorder at school age have been identified as an LT in toddlerhood.[8,56] The reason for lack of early identification is not yet known, but Poll and Miller (2013)[56] have suggested that, in addition to the late emergence of vocabulary, a second path to Language Disorder might be the toddler–preschooler who has timely emergence but a slowed rate of language after that.

ASCERTAINING RISK FOR LATE TALKERS GUIDES EARLY PREVENTION

Efforts in ascertaining risk factors for late talking and persisting Language Disorder have been ongoing, but no single reliable predictor has been found. **Boxes 5** and **6** list example predictors of late talking and Language Disorder, respectively. Family history and being male most consistently emerge as being associated with late talking and/or Language Disorder. The presence of a comprehension delay in conjunction with expressive delay at 24 months also tends to be associated with persistent Language Disorder. Bishop and coworkers (2012)[57] noted that heredity played a greater role in a LT exhibiting a Language Disorder. However, 2 important predictors of the LT who then persisted with Language Disorder at 4 years of age were:

- Poor comprehension at 20 months of age
- The parent's inability to repeat nonwords when the child was 20 months old

Why would a parent's nonword repetition (eg, repeat/teɪvak/which sounds like "tayvahk") predict a child's Language Disorder? All new words are nonwords before we learn them. Nonword repetition is a known indicator of the child's ability to learn new vocabulary.[66] First, this innate ability to process nonwords for repetition may be heritable. Second, parental nonword repetition may be indicative of a parent's

Box 5
Examples of risk and protective factors of late talker status

Males[10,58]

Family history of language delay[10,58,59]

Socioeconomic status[59]

Low birthweight[59]

Twin status[60]

Quality of parenting[59]

Time in day care[59]

Child's approach to learning[59]

Box 6
Example risk factors of persistent language disorder in late talkers

Poor receptive language/comprehension, and little to no gesture use[5,57,61]

Poor parent performance in repeating nonwords when child was 20 months old (Bishop, and colleagues,[57] 2012)

Suboptimal fetal growth[10]

Late talking in family members[10]

FOXP2-CNTNAP2 regulatory pathway[62]

Genetic risk for dyslexia[63,64]

Poor accuracy and slow speed of word recognition at 18 months of age[65]

own weak vocabulary store. That is, the child's vocabulary environment may be impoverished.

The influence of SES on late talking has varied from rearing at lower SES levels placing children at a disadvantage for timely talking to exerting no effect on the timeliness of talking.[10,58,59,65] Studies that show a large number of late bloomers "catch up" in language are limited in demographic to middle and upper middle class families as well as 2-parent households.[37] In many cases the SES of early studies is unknown. With a larger sample and broader demographic, Hammer and colleagues (2017)[59] found that children reared at lower SES levels were more likely to be LTs than children from higher SES levels. However, other variables mediated the effect of SES and those included:

- Birthweight
- Quality of parenting and childcare
- The child's own approach to learning (ie, specifically, attention)

These mediating variables—parenting, childcare, and approach to learning—are potentially amenable to intervention. Collisson and colleagues (2016)[58] found similar risk factors for late talking but also identified *protective* factors against late talking. Protective factors were:

- Informal play activities
- Shared book activities between infant–adult dyads

The protective activities against late talking are also integrated in early intervention programming.

WHY EARLY INTERVENTION AND THE USE OF PARENT-IMPLEMENTED INTERVENTION?

Intervention is studied for efficacy with LTs,[67] but not yet systematically as an outcome variable in recovery from late talking.[5] Anecdotally, Girolametto and colleagues (2001)[35] observed an association between participation in parent-implemented intervention and subsequent clinician-directed speech-language therapy, with a better "catch up" rate for the 21 LT–mother dyads they studied.

If an LT is determined eligible for early intervention, it places the child at an advantage. A parent-implemented intervention revolves around social interaction. In addition to a small vocabulary, LTs are described as serious, withdrawn, and less socially competent.[68,69] LTs are also more dependent on adults for both initiating and responding in conversations, even when compared with younger children who

are matched for vocabulary size.[68] Desmarais and associates (2010)[70] identified deficits in social engagement abilities to be a part of the most impaired communication profiles they identified in LTs. Only the least impaired group of LTs they studied had intact social skills. In turn, parents adapt their communication style to fit the LT's social engagement presentation. Caregivers tend to become more directive instead of directed by their child's interests.

A parent-implemented intervention balances the interaction style in the caregiver–child dyad. **Box 7** lists some main components of a well-studied, parent-implemented intervention—the Hanen Parent Program.[71] In general, language intervention with LTs can be effective,[67] but a parent-implemented intervention shows greater effect sizes in expressive vocabulary growth when compared with other treatments (eg, requiring the child to imitate words). Parent-implemented intervention maximizes carryover of new skills including a new interacting style. The parent-implemented intervention model dovetails well with ASHA's policy on a family-centered[72] practice, addresses environmental risks, and maximizes protective factors against late talking. In a meta-analysis by Roberts and Kaiser (2011)[31] the Hanen Parent Program improved:

- Receptive and expressive language skills, generally
- Receptive and expressive vocabulary, specifically
- Expressive grammar, specifically
- Rate of communication

In a separate study, a parent-implemented intervention (Parent-Child Interaction Therapy[73]) was applied to school-age children with Language Disorder.[74] Improvements were observed in:

- Verbal initiations
- Sentence length
- Child-to-parent utterances

Caregivers who participate in early parent-implemented intervention for their LT can potentially continue this technique with positive response from their school-age child. Enriched social interactions with supportive caregivers[75] are epigenetic mechanisms that can be lifelong and have cross-generational effects. Epigenome refers to chemical modifications to genes that result from negative and positive experiences. A rich learning environment, if applied repeatedly, can leave a chemical "signature"(p2) on genes—the epigenome.[76]

Box 7
Components of the Hanen Program for Parents

Intervention
- Occurs in the child's natural environment
- Is child directed and routines based
- Follows the child's lead and interest to promote taking turns
- Occurs during social interactions and daily routines with caregivers
- Encourages caregivers to 'wait' and 'observe' the child
- Allows the child time to initiate gestural and verbal communication
- Encourages caregivers to respond to nonverbal and verbal communication
- Encourages caregivers to model language that matches the child's attention and interest
- Encourages caregivers to model an expansion of what the child said

Data from Manolson A. It takes two to talk: a parent's guide to helping children communicate. Toronto: The Hanen Center; 1992.

ABANDONING THE WAIT-AND-SEE APPROACH

The position of the American Academy of Pediatrics is that children under 3 years of age are to be referred from the pediatrician's office for further developmental and medical evaluation if a toddler fails developmental screening (available: https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Screening/Pages/About-the-Initiative.aspx). The American Academy of Pediatrics implemented the Screening in Practices Initiative to foster the healthy care of children early in life. Under this initiative, children receive screening, referral and follow-up for developmental milestones (as well as maternal depression and social determinants of health). Standardized screening of developmental milestones occurs at 9, 18, and 30 months of age, as well as when a concern is expressed by a caregiver or is evident to the medical professional at well-child appointments. The Bright Futures Steering Committee modified the screening schedule by advocating for screening at 24 or 30 months owing to practical matters (ie, insurance, attendance[77]); autism-specific screening occurs at 18 and 24 months of age.[78] The CDC also implemented a campaign with similar goals:

- Learn the Signs. Act Early
- Available: https://www.cdc.gov/ncbddd/actearly/index.html

Medical and medically aligned health researchers advocate abandoning the wait-and-see approach.[6,12,22,79,80] New directions in brain and behavioral sciences,[21,36] and the availability of large population samples (eg, Early Childhood Longitudinal Study, Birth Cohort; ECLS-B[59]), endorse referral for further evaluation, but not a wait-and-see approach, when it comes to children who are late to talk (eg, American Academy of Pediatrics, ASHA, CDC). The ASHA advocated early referral through the Identify the Signs (available: www.identifythesigns.org) campaign. ASHA's position is that access to communication is fundamental to all children from birth and even those at-risk, and (in accordance with the World Health Organization[81]) advocate that interprofessional practice is the best approach to improving outcomes.

SUMMARY

Rescorla (2011)[5] has said that expressive language delay, like a fever, is common to many conditions.(p141) This article puts the spotlight on LTs with no concomitant diagnoses. Under an IPP umbrella, the wait-and-see approach is abandoned, and the LT is referred for further developmental evaluation. The IPP infrastructure is well-established under each state's early intervention program. Harms of referral were addressed or have no evidence. The crux of this article, however, reexamined the panoptic view that the majority of LTs "catch up" to their typically developing peers. New evidence shows that late bloomers demonstrate weaknesses that effect academic and social functioning. The child with Language Disorder may also be an outcome of late talking that should not be disregarded early on in the child's communication development. Late talking can impact early socialization, school readiness, and can place some children at risk for lifelong disability. Screening alone will not differentially diagnose late bloomers from children with Language Disorder. Referral for evaluation is supported by a number of interprofessional practice bodies and agencies. Parent-implemented intervention addresses some risks and maximizes protective factors against late talking. When considering referral for a LT, opt to refer for evaluation and potential intervention knowing that early intervention may result in long-term, positive outcomes for the child.

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